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MEMORANDUM

TO:	Leslie Patterson, USEPA	REF. NO.:	038443 15
FROM:	Adam Loney/Steve Quigley/cb/25 ACL	DATE:	August 27, 2014
RE:	**Site History: South Dayton Dump and Landfill, Moraine, Ohio (Site)**		

Site Background and Overview of Site History

United States Environmental Protection Agency (USEPA) requested a concise history of fill activity and waste disposal at the South Dayton Dump and Landfill Site (Site), specifically identifying areas of the Site which accepted (or did not accept) waste materials at various times, and characterizing the fill or waste material deposited. USEPA's current definition of the Site includes the following Parcels (as shown on Figure 1): Parcels 5054, 5171, 5172, 5173, 5174, 5175, 5176, 5177, 5178, 3753, 4423, 4610, 3252, and 3274; and the portions of Parcels 3278, 3056, 3057, 3058, and 3275, upon which waste has been placed[58].

Conestoga Rovers & Associates (CRA) has prepared this summary of the Site history based on CRA's comprehensive review of all relevant sources of information including, but not limited to, historic correspondence, analysis of Montgomery County Health Department (MCHD) and Ohio Environmental Protection Agency (Ohio EPA) historical records, aerial photographs, sworn deposition testimony, and real estate title records related to the Site. CRA has also conducted detailed Site investigations including test trenches, test pits, and soil borings and included information from visual observations and evaluation of the investigative locations in this memorandum.

CRA's review of the voluminous information indicates that well defined portions of the Site accepted clean fill and limited waste materials at various points in time from before 1936 until 1996. The key time periods during which specified portions of the Site accepted waste materials are as follows:

- Pre 1945: The "Cinn Dump" (see below) accepted waste material on an approximately 10 acre parcel at the northern end of the Site. This area was closed and has been used for asphalt production since 1956. Fill material, including some construction and demolition debris (CDD), was also placed on an approximately 9 acre area of the northeastern end of the Site (Figure 3).
- 1945 1955: Use of an approximately 12 acre portion of the Site as an unregulated "burning dump". This is the only period during which putrescible wastes were known to be accepted and were burned. Fill material, including some industrial solid waste, residual waste, and CDD, was placed on this portion of the Site (Figure 5).
- 1956 1968: Operation of an approximately 22 acre portion of the Site as an unregulated "burning dump". Available information indicates that the Site was not licensed by MCHD during this period.

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Putrescible wastes were not accepted. Fill material, including some industrial solid waste, residual waste, and CDD, was placed on this portion of the Site (Figure 7).

- 1969 – 1975: Operation of an approximately 15 acre portion of the Site as a licensed solid waste landfill subject to the requirements of HE 24[i] and accepting non-putrescible industrial, residual, and household wastes as well as CDD (Figure 9).
- 1976 – 1980: Operation of an approximately 17 acre portion of the Site as a licensed solid waste landfill subject to the requirements of the 1976 version of Ohio Administrative Code (OAC) 3745-27 and limited to the following wastes: industrial, residual, and CDD[ii] (Figure 11).
- 1981 – 1990: Operation of an approximately 20 acre portion of the Site as a licensed solid waste disposal facility which only received hard fill, residual waste, and CDD and was authorized pursuant to OAC 3745-27 (Figure 13).
- 1991 – 1996: The Site accepted only clean hard fill.

By 1968, approximately the northern half of the Site was developed for commercial and industrial purposes. No fill or waste material was placed on the developed areas (which include most or all of Parcel numbers 5054, 5171, 5172, 5173, 5174 and 5175) after development. These areas were never part of a sanitary landfill application.

A number of different commercial and industrial activities have historically operated and continue to operate at the Site as depicted on Figures 26 and 27.

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[i] HE 24: Ohio Solid Waste Disposal Law and Regulations. The Solid Wastes Disposal Act was passed in 1967 and the Regulations, required by the Act were adopted and became effective in 1968. Licensing requirements and prohibitions on open burning and open dumping became effective in 1969. HE 24 did not contain any closure requirements but did require that "*cover material of earth or other material acceptable to the health commissioner be applied at the end of each day's operation or more frequently when necessary unless otherwise approved by the director, and at a compacted depth so as to prevent insect and rodent attraction, breeding, and emergence; blowing litter; release of offensive odors; fire hazards; unsightly appearance and which will permit minimal percolation of surface water. The completed sanitary landfill shall be graded to serve its intended purpose and completed in accordance with the approved plans and specifications.*" HE 24 did not include any formal closure reporting or certification requirements.

[ii] OAC3745-27 (1976): 1976 Solid Waste Disposal Regulations. The Solid Waste Disposal Regulations, which were adopted and became effective in 1976, gave the Ohio Environmental Protection Agency authority over the licensing and inspection of solid waste disposal sites. OAC3745-27-09 (F)(3) specified the following with respect to the final cover: "*A well compacted layer of final cover material applied to all exposed surfaces of a cell upon reaching final elevation. The final cover material shall be applied in such amounts that all waste materials are covered to a depth of at least two feet. The completed area shall be seeded with such grasses or other vegetation as will form a complete and dense cover.*"

CRA has divided the Parcels into groups for discussion based on the sequence of filling, the types of waste and fill[iii] visually observed at investigated locations, and the general location with respect to type within the Site boundary, as shown on Figure 1 and described as follows:

Northern Parcels

The Northern Parcels consist of Parcels 3056, 3057, 3058, 3278, 5054, 5171, 5172, 5173, 5174, 5175, 5176, and 5177 as detailed below:

- Valley Asphalt Parcel – Parcel 5054
- Central Parcels – Parcel 5177 including road easement and portion of 5178 containing the north Quarry Pond embankment but excluding water and submerged portions of the Quarry Pond
- Dryden Road Businesses Parcels – Parcels 5171, 5172, 5173, 5174, 5175, and 5176
- Northern Miami Conservancy District (MCD) Parcels – Parts of Parcels 3056, 3057, 3058, and 3278 including embankments

During its operation as an unlicensed dump (i.e., between 1945 and 1968), the area of the Site where waste was deposited is generally referred to as the dump. During its operation as a licensed landfill, the area of the Site where waste was deposited is generally referred to as the landfill.

Southern Parcels

The Southern Parcels consist of Parcels 3252, 3274, 3275, 3753, 4423, 4610, and 5178 as detailed below:

- Quarry Pond Parcels – portions of Parcel 5177 and 5178 not included in Northern Parcels, including submerged portions of the Quarry Pond
- Jim City Parcels – Parcels 3753 and 4423
- Ron Barnett Parcels – Parcels 3252 and 4610
- Southern MCD Parcels – Parcel 3274, and portions of Parcel 3275

[iii] Throughout this document, CRA has used the term "waste" to denote material CRA visually identified as solid waste based on the definition in OAC 3745-27, residual waste based on the definition in OAC 3745-30, industrial waste based on the definition in OAC 3745-29, and construction and demolition debris based on the definition in OAC 3745-400 and the term "fill" to denote material CRA visually identified as being "earth…from construction, mining, or demolition operations", which is specifically excluded from the definition of solid waste in OAC 3745-27. These classifications are based solely on visual observations recorded on stratigraphic logs, as definitions in the OAC are qualitative, and do not include quantitative analytical characterization. CRA has used the term "filling" to refer to CRA's visual identification of waste or fill material and the term does not differentiate between the two. "Landfilling" refers to CRA's visual identification of waste only.

Conclusions Regarding Site Filling

The table below summarizes the available information for each of the parcels that comprise the Site.

Parcel	*Size (Acres)*	*Ownership*	*Period of Filling*	*Nature of Fill*	*Comments*
Northern Parcels					
5054	**9.9**			Burning dump. Mainly ash, non combustibles, putrescible wastes burned	
Northern 5054	7.3	Boesch & Grillot 1951 – ~1993 Valley Asphalt 1993 – Present	Prior to 1936		Cinn Dump in northern portion, filled prior to 1936 based on depositions and aerial photos. Metals later mined from this area.
Southern 5054	2.6	Boesch & Grillot ~1937 – 1993 Valley Asphalt 1993 – Present	1945 – 1955		Largely filled by 1955 based on aerial photos, depositions, except for southern edge, filled by 1957.
5171	**5.7**	Boesch & Grillot 1951 – Present	Prior to 1936	Burning dump. Mainly ash, non combustibles, putrescible wastes burned	Not part of dump or landfill based on aerials, depositions and the undated tax map. May have been part of Cinn Dump.
5172	**1.9**	Boesch & Grillot 1951 – Present (possibly as early as 1936)	Filled by 1955	Mainly ash, non combustibles, putrescible wastes burned	Only southwestern corner of parcel based on aerials. Buildings constructed by 1956.
Portions of 3056, 3057, and 3058	**3.8**	Miami Conservancy District (MCD)	Filled by 1955	Mainly overburden from quarry	Cinn Dump may extend under levee at northern portion of Parcel 3056.
5173	**1.4**	Boesch & Grillot 1936 – Present	Filled by 1955	Mainly ash, non combustibles, putrescible wastes burned	Only western quarter of parcel based on aerials. Buildings constructed by 1956.
5174	**1.1**	Boesch & Grillot 1936 – Present	1955 – 1968	ISW, RW, CDD wastes, no putrescibles	Only western quarter of parcel based on aerials. A building present in 1956. Current buildings present by 1968.
5175	**3**	Boesch & Grillot 1936 – Present	1955 – 1969	ISW, RW, CDD, no putrescibles	Only western half of parcel based on aerials. Buildings present by 1954.
5176	**1.1**	Boesch & Grillot 1936 – Present	1970 – 1975	ISW, RW, CDD, no putrescibles	Only western half of parcel based on aerials. Buildings present by 1954.
Site entrance (no Parcel #)	**1.1**	Boesch & Grillot 1936 – Present	1976 – 1980	ISW, RW, CDD, no putrescibles	Only northwestern corner of parcel based on aerials. Remainder was an access road from the time of the original farm.
5177	**25.4**	Boesch & Grillot 1937 – Present		ISW, RW, CDD, no putrescibles	
Northern 5177	3.6		1955 – 1969		Main area of unlicensed dump.

Parcel	*Size (Acres)*	*Ownership*	*Period of Filling*	*Nature of Fill*	*Comments*
Southern 5177	21.8		1955 – 1996		Main area of licensed landfill.
Portion of 3278	**3.4**	MCD	1955 – 1968	ISW, RW, CDD wastes	Primarily overburden from gravel quarry according to depositions and testing.
Southern Parcels					
5178	**14.9**	B&G 1945 – Present	1981 – 1988	Mainly fill with some RW and CDD	Parcel never part of the landfill based primarily on depositions and supported by aerial photos, historical correspondence.
3274	**6.3**	B&G 1944 – 1968 University of Dayton (UD) 1968 – 1969 MCD 1969 – Present	None	Surficial CDD at one location	Parcel 3274 was never part of the landfill and was conveyed to University of Dayton before any filling occurred on Southern Parcels.
4610	**2**	B&G 1944 – ~1981 Lacy ~1981 – 1992 Ron Barnett 1992 – Present	1960 – 1968 1981 – 1990	RW, CDD in north and west	Eastern portion may have been filled between 1960 and 1968 aerials. Western portion filled between 1981 and 1988 aerials. Never part of landfill based on depositions and correspondence.
4423	**3.5**	B&G 1944 – 1981 Lacy 1981 – 1992 Various including Jim Worley (of Jim City) 1992 – Present	1981 – 1990	RW at one location	Parcel 4423 was conveyed to Lacy in 1981 prior to filling on this parcel based on aerial photos.
3753	**2.5**	B&G 1944 – 1975 Roberson 1975 – 1988 Jim Worley 1988 – Present	1970 – 1975	CDD	Parcel 3753 was conveyed to Robersons in 1975 prior to entry into force of closure requirements and was not part of 1976 license application.
3252	**0.3**	B&G 1944 – ~1981 Lacy ~1981 – 1992 Ron Barnett 1992 – Present	None	None	Parcel was never excavated or filled.
Portion of 3275	**0.2**	MCD	~1968	Overburden from quarry	Never part of landfill based on depositions.

Based upon multiple lines of evidence including a detailed review of the Site history and the investigations completed to date, CRA has arrived at the following conclusions with respect to the various parcels which comprise the Site:

ffi The Valley Asphalt Parcel (Parcel 5054); the majority of the Dryden Road Businesses Parcels (Parcels 5171, 5172, 5173, 5174, and the eastern half of Parcels 5175 and 5176); the unnamed parcel where the Site entrance is located; and the majority of the northern MCD Parcels (portions of Parcels 3056, 3057, and 3058 that are included within the Site description) were filled prior to the end of 1968 and were,

therefore, never part of licensed landfill operations. These parcels and portions of parcels are not subject to the closure requirements of OAC 3745 27.

- Portions of the Southern Parcels (Parcel 5178 and the portion of Parcel 3275 included in the Site description) were not part of the 1976 landfill license application and never accepted wastes according to the depositions. Parcels 5178 and 3275 are, therefore, not subject to the closure requirements of OAC 3745 27.
- One of the Ron Barnett Parcels (Parcel 3252) and one of the Southern MCD Parcels (Parcel 3274) were never part of the landfill, as evidenced *inter alia* by the undated tax map, and were sold by Boesch and Grillot prior to any filling activities taking place in the Southern Parcels. Therefore, Parcels 3274 and 3252 should be excluded from the Site description entirely.
- One of the Jim City Parcels (Parcel 3753) was filled with soil and CDD between 1970 and 1975 and was sold by Boesch and Grillot in 1975 prior to the effective date of the closure requirements of OAC 3745 27. Another of the Jim City Parcels (Parcel 4423) was sold in 1981 prior to the occurrence of filling. Limited filling may have occurred on one of the Ron Barnett Parcels (Parcel 4610) in the late 1960s but Parcel 4610 was not included in the 1976 landfill application and was, therefore, not part of the licensed landfill after the effective date of the closure requirements of OAC 3745 27. Parcels 4423 and 4610 were sold by Boesch and Grillot in or about 1981 prior to any further occurrence of filling. Therefore, Parcels 3753, 4423 and 4610 are not subject to the closure requirements of OAC 3745 27.
- To the extent that any of the parcels are subject to the closure requirements of either HE 24 or the 1976 version of OAC 3745 27, closure requirements have been met as the solid wastes (as they were defined in HE 24 and OAC 3745 27 (1976)) have been covered with material considered appropriate cover at the time. The areas of the Site where filling occurred have been covered with a layer of inert material greater than two feet in thickness in accordance with the various license requirements applicable to the Site throughout its history. Ohio EPA and MCHD files confirm that the relevant operations were considered "closed" and no capping or other closure activity was required.
- As the areas of the Site that operated pursuant to solid waste disposal facility licenses were not classified as a sanitary landfill[iv], the closure requirements for sanitary landfills in the 1976 version of OAC 3745 27 do not apply to the Site. There were no closure requirements for industrial waste landfills and hard fill sites in the 1976 version of OAC 3745 27.

A review of the historical records and agency correspondence confirms that the only portion of the Site which accepted waste material and operated under any form of license after 1968 was located on Parcel 5177. As confirmed below, this area never operated as a sanitary landfill. Instead, it accepted

[iv] Sanitary landfill is defined in HE 24 as "a method of disposing of solid wastes on land without creating nuisances or hazards to public health by utilizing principles of engineering to confine the solid wastes to the smallest practical area, to reduce the solid wastes to the smallest practical volume and to cover such wastes." The key term in the definition of a sanitary landfill is "solid waste", which is defined in HE 24 as "such unwanted residual solid or semisolid material as results from industrial, commercial, agricultural, and community operations, excluding earth or material from construction, mining, or demolition operations and slag and other substances which are not harmful or inimical to public health, and includes garbage, combustible and noncombustible material, street dirt, and debris." From 1970 onwards, the materials placed in the landfill included earth or material from construction, demolition operations, slag, and foundry sand and fly ash (the latter two of which were considered not harmful or inimical to public health at the time and were expressly included in the description of permissible cover materials in the license related correspondence. During this time period, the Site did not accept garbage and all combustible materials accepted were incinerated in the licensed ACD. The Site was, therefore, not operating as a sanitary landfill.

materials exempted from the definition of solid wastes, i.e., what would now be defined as industrial wastes, residual wastes, CDD and inert fill, and the relevant area was never subject to the sanitary waste closure requirements subsequently established in OAC Chapter 3745-27.

Waste Types

Details regarding the basis for these conclusions are provided in subsequent sections of this memorandum. The wastes described in the remainder of this document includes waste identified[v] as municipal solid waste (MSW[vi]), industrial solid waste (ISW[vii]), residual waste (RW[viii]), or construction and demolition debris (CDD[ix]) based on a comparison of visual observations or written descriptions to the definitions listed in the current version of Chapter 3745[x] of the OAC. Note that these definitions did not exist prior to the 1990s. CRA's basis for the classification of the materials described in the Site correspondence and documentation, and visually observed at investigative locations at the Site is summarized in the following table.

Waste Classification	*Waste Encountered*
MSW	Household garbage Miscellaneous glass bottles Tin cans Isolated newspapers (i.e., not large quantities of the same edition)
ISW	Manufacturing/industrialoperationswaste Metal shavings and chips Plastics Glass bottles (where large quantities of the same type were present, indicating disposal from a bottle manufacturer or bottling plant) Newspapers present in large quantities of the same edition
RW	Foundry sand Fly ash Cinders

[v] Waste classifications as described in OAC 3745-27, 29, 30, and 400, are based on visual observations. OAC waste classifications do not require analytical characterization.

[vi] MSW, as defined by OAC 3745-27-01(M)(6), is a type of solid waste generated from community, commercial, and agricultural operations.

[vii] ISW, as defined by OAC 3745-29-01(A), is a type of solid waste generated by manufacturing or industrial operations.

[viii] RW, as defined by OAC 3745-30-01(B) and (C), is a type of solid waste, including wastes from fuel burning operations (which burn primarily coal), wastes from foundry operations, wastes from pulp and paper making, wastes from steel making, wastes from lime processing, and wastes from cement operations and includes, among other wastes, air pollution control dust, spent foundry sand, dust from steel processing and finishing operations, nontoxic fly ash, and nontoxic bottom ash. OAC 3745-29-01(B) also notes that slag may be disposed at a RW waste facility.

[ix] CDD, as defined by OAC 3745-400-01(F), are materials resulting from the alteration, construction, destruction, rehabilitation, or repair of any manmade physical structure, including, without limitation, houses, buildings, industrial or commercial facilities, or roadways, and includes brick, concrete, and other masonry materials, stone, glass, wall coverings, plaster, drywall, framing and finishing lumber, roofing materials, plumbing fixtures, heating equipment, electrical wiring and components containing no hazardous fluids or refrigerants, insulation, wall-to-wall carpeting, asphaltic substances, metals incidental to any of the above, and weathered railroad ties and utility poles.

[x] Prior to the 1990 amendments, material was either defined as solid waste or specifically exempted from the definition of solid waste (i.e., industrial wastes, residual wastes, CDD, inert fill). Industrial wastes were first defined in the 2004 amendments. Residual wastes were first regulated (as exempted wastes) in approximately 1990 and more formally in 1994 but were not specifically included under OAC3745 until 2004 and CDD appears to have been first defined in the 2004 amendments.

	Slag
CDD	Brick Concrete Window (plate) glass Weathered railroad ties Plumbing fixtures

In addition to the waste categories described above, CRA consistently observed "non waste fill material," consisting of non native soil visually free of waste placed as cover over waste or to fill areas to grade.

Based on CRA's detailed review of the large and representative collection of historical aerial photographs, any excavation or backfilling along the east west access road, which runs through the center of the Site and separates the Northern and Southern Parcels, has been very limited. The presence of high voltage electrical towers on the Site currently and historically, as evident in aerial photographs dating back to 1956[xi], and the results of CRA's investigation indicate that some parts of this area have not been excavated (e.g., MW 101A), or are characterized by only a few feet of non native soil material and CDD waste (e.g., VAS 21B, TT 13, VAS 17, and SD 002). Non native soil material and CDD waste have been found right up to the edges of the access road; however, at investigated locations, only small amounts of non native soil were present within and beneath the access road itself, suggesting that the access road was never excavated. Activities on the Northern and the Southern Parcels occurred largely independently of each other. Therefore, this memo discusses the Northern Parcels and Southern Parcels separately for each time period below. Where buildings are referenced, they are referenced by number using the convention established during the Vapor Intrusion Removal Action. Figure 1 includes the parcels and the buildings by building number and demarcates the Northern and Southern Parcels.

Site History by Area and Time Period

Northern Parcels

Pre 1945 / Pre South Dayton Dump and Landfill and Operation of the Cinn Dump

Aerial photographs from this period are provided on Figure 2. A figure showing the areas where filling occurred during this period and a photograph of a test pit typical of these areas is provided as Figure 3.

The parcels that now comprise the northern portions of the Site were originally a farm owned by a Pop Duncen[1,pg.14] (or Dunson[2,pg.17]). The farm is visible in the 1935 aerial photo of the Site (Figure 2) extending across the entirety of the Northern Parcels with the house and main farm buildings located in the center of the Site. Jack Boesch Sr. (Boesch) purchased the property in the 1930s and it continued to be operated by Duncen[1,pg.11,2,pg.18]. At the same time, Cyril Grillot owned and operated a series of fireworks warehouses on the portion of the Site immediately adjacent to Dryden Road[1,pg.11,2,pg.18]. Cyril Grillot purchased the original 25 acres in 1936[3,pg.2]. The fireworks business appears to have been located on Parcels 5174, 5175 and 5176[1,pg.15,2,pg.19,3,pg.2,4]. Boesch and Grillot acquired the majority of the remainder of the Northern Parcels in a series of transactions in 1937 and 1938[1,2,3,pg.2]. The last purchase, of 13.49 acres occurred in 1952[3,pg.3]. Based on the descriptions of the lands conveyed (parts of Sections 7, 8, 13, and 14)[3,pg.3] and the 2006

[xi] An easement was granted to Dayton Power & Light in 1958 to allow the installation of the power lines.[3]

Boesch deposition[1,pg.23], this purchase appears to have been in the northeastern part of the Site, i.e., Parcels 5054 (northern and eastern portions of the Valley Asphalt Parcel), 5171, 5172, and possibly the easternmost parts of Parcels 5173 and 5174.

On the far north end of the Site, near the current entrance to Valley Asphalt, Charlie Cinn's dump (Cinn Dump) was present in the 1920s/1930s and may have been present since the turn of the century[1,pg.15,2,pg.28]. The Cinn Dump was already filled and closed by the 1930s when Grillot and Boesch first became associated with the Site[1,pg.16]. The location of the Cinn Dump is highlighted on Figure 3 and corresponds to the area of scrub brush on the 1935 aerial photo (northern portions of Parcel 5054 and possibly Parcel 5171), which would indicate that the dump had been closed for some time prior to 1935. These areas were never part of the licensed landfill operated by Alcine Grillot and, therefore, are not subject to the closure requirements of OAC 3745-27.

The Broadway Sand and Gravel Pit, where they extracted, hauled, and sold gravel, opened around 1942[2,pg.23] or 1944[1,pg.101] and operated until approximately 1966 or 1967[2,pg.23,4]. The approximate location of the Broadway Sand and Gravel operation is shown on Figure 4. Cyril Grillot directed the operators of Broadway Sand and Gravel to use the overburden from the gravel operations to extend the levee that the MCD had earlier constructed but which only extended a few hundred feet to the west of Dryden Road.[1,pg.21]

1945–1955: Early Operation of "Burning Dump"

Aerial photographs from this period are provided on Figure 4. A figure showing the areas where filling occurred during this period and a photograph of a test pit typical of these areas is provided as Figure 5.

Gravel excavation proceeded from the north to the south and in the 1954 aerial photograph (Figure 4)[4], excavation is apparent throughout the northern and central portion of Parcel 5177 and the western portion of Dryden Road Businesses Parcels 5175 and 5176.

In 1946[1,pg.22] or 1947[2,pg.24], Alcine Grillot (Cyril Grillot's brother) began accepting wastes at a portion of the Site, primarily on Dryden Road Business Parcel 5171. The filling in the 1940s occurred at the southern edge of the Valley Asphalt Parcel (Parcel 5054), the northern portion of Central Parcel 5177, the southwestern part of Parcel 5172, and the western part of Parcel 5173[1,2,4].

In 1950/1951, Cyril Grillot purchased the land containing the former Cinn Dump and decided to salvage old metal from the Cinn Dump[1,pg.24,2,pg.29]. 13.49 acres were conveyed to Cyril Grillot in 1951-1952 and, based on the descriptions of the lands conveyed (parts of Sections 7, 8, 13, and 14)[3,pg.3], this probably represents the land occupied by the former Cinn Dump. Material was excavated from the Cinn Dump, metal was separated, and the remaining material was dumped back into the Cinn Dump[1,pg.25,2,pp29-35] and covered. This area is presently actively used for Valley Asphalt operations.

Alcine Grillot wrote that "[*a*]ll materials... that we disposed of were burned at the end of each days operation"[69] and initially, "all materials brought including garbage was [*sic*] burned."[56] Jack Boesch corroborated this information: "The dump operated basically as a burning dump. They used to burn it every night, you know, if they got paper and trash and stuff in there, but the county got an injunction against them in 1955 to stop their burning."[1,pg.23] After 1955, only solid fill was accepted, not trash or

household waste, because they could no longer burn the waste. David Grillot, son of Alcine Grillot, stated that no putrescible wastes were ever accepted; however, his association with the landfill did not begin until approximately 1960[8,pg.27]. Michael Wendling, who was first associated with the Site in approximately 1953, at the age of eight, also stated that the Site did not accept garbage[59,pg.21].

The landfill burning operation continued from 1945 to 1955[1,pg.23,6], concurrent with metal salvaging and wood incineration projects on Dryden Road Business Parcel 5171. Jack Boesch stated that in 1946, "household and industrial wastes were accepted in the northeast edge of the barrow [sic] pits, halfway between East River Road and the Great Miami River (GMR)"[1,pg.20]. Based on the USEPA's aerial photo analysis, waste burning may have been occurring in the southern portion of Dryden Road Business Parcel 5171 in 1949. The 1949 aerial photo (Figure 4) appears to show filling occurring along the northern portion of the gravel pit in the southern portion of the Valley Asphalt Parcel (Parcel 5054) and the southwestern portion of one of the Dryden Road Businesses Parcels (Parcel 5171). By 1949, a commercial structure, which appears to be the eastern portion of the existing Building 17, is already present on the eastern portion of one of the Dryden Road Businesses Parcels (Parcel 5175) and smaller structures are present on the eastern portions of other Dryden Road Businesses Parcels (Parcels 5173, 5175, and 5176), indicating that the eastern portions of these parcels were never part of a dump or landfill. This is corroborated by Jack Boesch who stated the following:

> *Now, at the time dad and Cyril would not let them come to the front. They wanted to come more to the front, you know, with the gravel, and they wouldn't let them because that's where they built their first building, see, the old Flemming truck building which is now B&G Body Truck Parts* [Building 8], *I don't know, body shop or something, and then the building next to where his wing was* [most likely Building 12]. *They didn't want them coming in there. So they stayed in the back, and they went on an angle across there*[1,pg.22] [an angle from the southeast to the northwest across Dryden Road Business Parcel 5172 and the southern part of Valley Asphalt Parcel 5054 as clarified elsewhere in the deposition and shown on the 1954 aerial photo].[1,pg.22,4]

The eastern portions of all Dryden Road Businesses Parcels (Parcels 5171, 5172, 5173, 5175, 5176) never accepted waste materials.

Between 1945 and 1955, based on the depositions of Jack Boesch (2011)[2] and Michael Wendling[7], the following materials were brought to the Site: excess soil, metal chips and shavings, foundry cores, barrels of sludge, wood products, transformers, clinkers, telephone poles, ceramic cylinders containing lead, bottles, bottle caps, wood crates, five gallon drums of paint, coiled wire, brake pads, wheel cylinders, drums of ink and sludge waste, brass shavings and paper, cardboard, wood, caulking, oil, plastic and metal tubes, furniture, hot oil, cans containing soap, phone books, uniforms, janitorial products, phones, and drums containing plastic and metal, and asphalt. The combustible portion of this material was burnt on a daily or weekly basis.[1,pg.23,2,pg.25,7,pg.43] During this time period, there were no licensing or closure requirements for dumps or landfills and, therefore, the portions of the Valley Asphalt Parcel (Parcel 5054), and some of the Dryden Road Businesses Parcels (Parcels 5171, 5172, and 5173) where filling occurred between 1945 and 1955 are not subject to any closure or final cover requirements.

1956–1968: Operation of the Burning Dump with Non Putrescible Material Only

Aerial photographs from this period are provided on Figure 6. A figure showing the areas where filling occurred during this period and a photograph of a test pit typical of these areas is provided as Figure 7.

By 1956, the gravel extraction operations had moved further southwest from the area first visible in the 1949 aerial photograph (Figure 4) and occurred in the center of Parcel 5177 and the westernmost portions of Parcels 5174 and 5175[4]. Filling operations from the 1945 – 1955 period continued to move south as well and in 1956 occurred in the north central portion of one of the Central Parcels (Parcel 5177) and possibly at the western portions some of the Dryden Road Businesses Parcels (Parcels 5174, 5175, and 5176)[4]. Objects which may be cars are visible in the northeastern portion of one of the Central Parcels (Parcel 5177) and the western portion of another one of the Dryden Road Businesses Parcels (Parcel 5173) confirming the establishment of Doyles Auto Salvage, which started in approximately 1950 or 1951[1,pg.28]. Buildings are present on the following Dryden Road Businesses Parcels: Parcels 5172 (Buildings 12 and 13), 5173 (Building 15), and 5175 (Building 17) and correspond to structures which exist currently; although, subsequent additions have enlarged the building footprints[4]. A building, which no longer exists, was present in 1956 to the south of Building 17 in 1956[4]. Valley Asphalt's operations are first visible on Parcel 5054 in the 1957 aerial photo (Figure 18) with the Quonset Hut (Building 2) and adjacent lab building (Building 1) not appearing until the 1959 aerial photograph (Figure 19). Building 14 and the two office wings on Building 12 are visible on Parcel 5172 in the 1959 aerial photo. The southern portion of Building 12 was originally occupied by Ohio Sealer and Chemical Company and the office at the northern end of the building was occupied by Boesch and Grillot[1,pp,32,43,44,61,62,143]. In 1968, gravel extraction operations were largely complete having extended up to the east west access road that separates Parcels 5177 and 5178[4]. Broadway Sand and Gravel ceased operation at the Site in 1966 or 1967[2,pg.23]. The open excavation visible in the 1968 aerial photograph (Figure 6), which extended from one of the Central Parcels (Parcel 5177) onto the western portion of Parcels 5175 and 5176, was partially flooded[4]. Jack Boesch stated that Broadway Sand and Gravel ceased gravel extraction because the filling had caught up to the extraction operations[2,pg.24]. Given that the open excavation was flooded in the 1968 aerial photograph (Figure 6), it would appear that Broadway Sand and Gravel had extracted all of the easily mineable gravel from the Northern Parcels of the Site by this time and that may have been the reason they ceased operation.

In 1968, filling occurred primarily in the central and southern portions of one of the Central Parcels (Parcel 5177)[4]. On December 31, 1968, Alcine Grillot applied for a License to Operate Solid Waste Disposal Site for commercial and industrial wastes, which MCHD approved and issued on January 3, 1969[13]. This was the first time that a portion of the Site was licensed as a solid waste disposal facility and only a portion of the Central Parcel (Parcel 5177) accepted waste. Doyle's auto salvage operation covered much of the northernmost Dryden Road Businesses Parcel (Parcel 5171), the southern portion of the Valley Asphalt Parcel (Parcel 5054), and the western portions of Parcels 5172 and 5173 in 1968. In this same period, Buildings 8 and 9 were present on Parcel 5171 and Building 16 was present on Parcel 5174, largely in its current form[4]. The presence of the Valley Asphalt operations and the commercial/industrial buildings in their current locations before 1968 indicates that the Valley Asphalt Parcel (Parcel 5054) and the eastern portion of several Dryden Road Businesses Parcels (Parcels 5172, 5173, and 5175) could not have been considered part of a licensed landfill operation, the earliest records of which date to 1969.

The majority of the material brought to the Site after 1955 was "industrial solid waste"[1,pg.38]. Putrescible materials were not accepted. Commencing around 1957 and continuing for the next 10 to 15 years, Ottoson Solvents was emptying and cleaning used drums and burying drums on the Valley Asphalt Parcel (Parcel 5054) where the Quonset Hut (Building 2) was located[1,pg.57]. The activities conducted by Ottoson Solvents were unrelated to the landfill operations conducted by Boesch and Grillot. Mr. Ottoson disposed of drums on this portion of the Site that were too destroyed to rehabilitate[1,pg.56]. In 1991, Valley Asphalt excavated and removed five drums of material from the Valley Asphalt Parcel (Parcel 5054) in the general vicinity of the former Ottoson solvent operations[55]. CRA removed one additional drum during the 2008 Test Pit and Test Trench Investigation[47,pg.69]. One or two drums may remain in the area where the six drums were previously removed[47,pg.157]. No other evidence of intact drums has been identified through the extensive investigations of this area.

David Grillot, who first went to the landfill in approximately 1960, stated that no garbage[xii] was ever taken at the landfill but that household materials[xiii] were accepted[8,pp.27-28].

When Jack Boesch worked at the Site in 1960-1967, he testified that fly ash, soil, asphalt, concrete, gravel, metal scrap and shavings, and foundry cores were disposed of on the active Central Parcel portion of the Site (Parcel 5177)[1,pp.141-142]. During this time period, there were no licensing or closure requirements for dumps or landfills and, therefore, the portions of one of the Dryden Road Businesses Parcels (Parcel 5174) and one of the Central Parcels (Parcel 5177) where filling occurred between 1956 and 1969 are not subject to any closure or final cover requirements. The Site did not accept putrescible municipal solid waste after 1955 and did not accept putrescible municipal solid waste after the MCHD issued a solid waste disposal license in 1969 to allow for continued landfill operations on one of the Central Parcels (Parcel 5177). The northern portion of the Site was never a licensed sanitary landfill or municipal solid waste landfill and the closure requirements applicable to sanitary landfills and municipal solid waste landfills are not applicable to any portion of the Site.

1969–1975: Operation of a licensed landfill on an identified portion of the Central Parcel (Parcel 5177) in accordance with HE 24

Aerial photographs from this period are provided on Figure 8. A figure showing the areas where filling occurred during this period and a photograph of a test pit typical of these areas is provided as Figure 9.

In the 1970 aerial photo on Figure 8, filling continued on one of the Central Parcels (Parcel 5177), primarily in the northeast quadrant based on the locations of the access roads. Water was no longer evident in the open excavation[4]. Otherwise, the Site appears generally unchanged from the 1968 aerial photo on Figure 6[4]. By the 1975 aerial photograph on Figure 8[4], filling was largely restricted to the southern portion of one of the Central Parcels (Parcel 5177). In 1975, the automobile salvage yard occupied the southern portion of the Valley Asphalt Parcel (Parcel 5054), the northern portion of one of the Central Parcels (Parcel 5177) and the western portions of several Dryden Road Businesses Parcels (Parcels 5171, 5172, and 5173 and may have extended onto Parcel 5175).

[xii] kitchen trash, food waste, the type of waste that a resident would place in a plastic bag at the curb (i.e., putrescible waste)[8]

[xiii] broken furniture, old appliances, yard waste, tree trimmings, etc.[8]

The MCHD files for the licensed portions of the Site include an undated Montgomery County tax map[9]. An undated hand written note, attributed to Alcine Grillot (as confirmed by his son David Grillot[8]) on the tax map includes the following statements: "70 acres of land [*with*] approximately [*sic*] 25 acres filled to grade" and "improved with 9 commercial buildings under lease and 3 businesses with small offices on the property." This statement is best understood to refer to the entirety of the property under the control of Mr. Alcine Grillot and has no relation to the area actually accepting waste. The development of various areas of the property, the aerial photos, and the sworn deposition testimony consistently and conclusively demonstrate that only a small portion of the Northern Parcels—notably one of the Central Parcels (Parcel 5177), accepted waste after 1968. The notes further state:

1. Operation consists of Solid Fill Materials, Brick, Fly ash, Cinders, Foundry Sand, Steel Slag, Brake Lining dust, dirt, clay, Broken Concrete, Blacktop
2. Oils, Paint residue, Brake Fluids, Chemicals for Cleaning Metals, Solvents, etc.
3. Materials that are, Burned, Wooden Palates [sic], Wooden power Poles, Furniture, refrigerator's [sic], other wood products such as brush Logs and railroad ties, wood from Construction jobs or wrecked buildings, cardboard and paper scrap from industry and business, free of garbage

CRA notes that the "oils, paint residue, brake fluids, chemicals for cleaning metals, solvents, etc." are not identified as being disposed of at the Site but merely form part of the list of materials accepted at the Site.

The Ohio EPA is understood to believe that the tax map formed part of an application for a landfill license sometime in the late 1960s. As noted in a November 12, 2002 letter from Ohio EPA to USEPA[10], no documentation exists concerning the origin of the tax map and it is not associated with any particular license application or correspondence in the file.[xiv]

On March 27 and April 10, 1969, Sanitary Landfill Inspections completed by MCHD[14,15] indicated that garbage[xv], paint thinner, paper, and furniture were dumped at the Site. Alcine Grillot contradicted this by saying that he had not run a landfill operation since 1955 and that the Site only accepted waste that could be burned, including brush, wood, and industrial wastes[16]. Later that month (September 17, 1969), in an unfiled State Affidavit, Joe Bindeman of the MCHD stated that lumber, tree trimmings, paper, and cloth were accepted for incineration[17], in accordance with Alcine Grillot's statement in the September 2, 1969 letter. On October 8, 1969, MCHD replied with a letter, acknowledging that the Site will not be operated as a solid waste disposal site[51]. On December 11, 1969, the MCHD stated that the Site could accept "earth or material from construction, mining, or demolition operations and slag and other substances which are not harmful or inimical to public health" and would not require a permit to do so. On December 31, 1969, the landfill permit expired and was not immediately renewed, according to a February 24, 1970 Sanitary Landfill Inspection Form[18]. On January 21, 1970, the MCHD identified the Site as an industrial waste

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[xiv] The undated tax map was most likely prepared circa 1969. Based on the aerial photographs and the fact that Parcel 3274 is shown on the tax map as belonging to the MCD (Parcel 3274 was conveyed to the MCD in 1969). Notes on the tax map indicate that there are nine commercial buildings present. Nine buildings are first visible in the 1968 aerial photograph and the extent of landfilling indicated on the tax map corresponds closely with that visible on the 1968 aerial photograph[4].

[xv] The nature of the 'garbage' is not elaborated upon.

disposal site and stated that "solid waste as defined by Section 3734.01 of the Ohio Revised Code[xvi] may not be accepted at this industrial waste disposal site."[53] The MCHD also stated that the exposed material was to be compacted and covered with earth or foundry sand to a depth of two feet[53].

Based on the above evidence, the MCHD did not consider the Site to be a solid waste disposal site as of 1970. Industrial wastes at the Site are overlain by two feet or greater of generally inert material (non native soil, foundry sand, construction debris etc.)[54], which meets the then applicable closure requirements stipulated by the MCHD.

Alcine Grillot stated that starting January 1, 1970, only dirt, concrete, fly ash, brick, incinerator ash or other inorganic material would be accepted[19]. David Grillot stated that the Site ceased accepting household wastes in 1970 or 1971 after open burning was prohibited[8,pg.24]. On April 1, 1970, the City of Moraine issued a Refuse Disposal Permit to the Site for burnable and non burnable wastes, including trees, brush, and shrubbery[20]. Permission was granted by MCHD to burn waste lumber and tree trimmings from May 3 until May 15, 1970[21].

MCHD completed a sanitary landfill inspection on May 25, 1970 and noted that industrial waste was deposited in the landfill, including solid fill material in the southern portion, metal for recycling in the central portion, and wood refuse for incineration in the western portion[22]. Likewise, in a letter to MCHD dated August 5, 1970, the District sanitary engineer stated that the Site was accepting tree limbs, tree trimmings, pallets, and other clean wood wastes for the air curtain destructor (ACD)[23]. Ed Grillot stated that ash residue from the ACD was disposed of on site[5,pg.27]. In the report for a sanitary landfill inspection on September 22, 1970, the MCHD noted that solid fill was deposited in the landfill[24]. On October 19, 1970, MCHD notified Alcine Grillot and, by copy Larry Brannon of General Sanitation Corporation, that they could operate the ACD for a several week "shakedown" period[25]. By October 23, 1970, vegetation and wood wastes were accepted for controlled open burning using the ACD[26]. The location of the ACD is shown on Figure 9. On November 12, 1970, Alcine Grillot submitted a Solid Waste Disposal Facility Data Sheet for the operation of a landfill and the ACD[28]. The Solid Waste Disposal Facility Data Sheet dated November 12, 1970 stated that the Site was receiving industrial wood products, tree trimmings, commercial wood scrap, and other materials conforming with air pollution standards and that cover material would be "dirt, gravel, foundry sand, ash, cinders etc." from "Dayton Power & Light, Dayton Steel Foundry and other industries [*sic*]"[28,pg.3].

On January 5, 1971, the Ohio Department of Health approved the plans to operate the Site as a Solid Waste Disposal Facility[29]. Ohio EPA licensed the Site as a Type 2 – Incinerator Facility from December 30, 1970 until January 8, 1971[27].

In a letter to Alcine Grillot regarding the survey of Montgomery County's solid waste disposal program on February 24, 1971, the Site was accepting paper for reclamation, but no longer burning because the ACD

[xvi] "Solid wastes means such unwanted residual solid or semisolid material as results from industrial, commercial, agricultural, and community operations, excluding earth or material from construction, mining, or demolition operations and slag and other substances which are not harmful or inimical to public health, and includes garbage, combustible and noncombustible material, street dirt, and debris." Ohio Revised Code Section 3734.01 (E), 1970.

was inoperable[30,pg.2]. The steel walls of the ACD had distorted to the point where it was no longer operational and had to be rebuilt[30,pg.2].

From December 11, 1972 to December 11, 1976, MCHD approved and issued yearly Licenses to Operate a Solid Waste Disposal Facility for commercial and industrial waste[31]. Waste was only accepted on the southern portion of one of the Central Parcels (Parcel 5177). The licenses included ash residue from the ACD, wood waste for burning, and paper for salvaging. In 1974, Ohio EPA took over the authority for annual licensing; however, the licenses continued to be issued by and overseen by MCHD on behalf of Ohio EPA[31]. Until 1975, the Site was also licensed to accept "household wastes". The notes accompanying the 1975 License to Operate a Solid Waste Disposal Facility issued by the Ohio EPA (signed by a representative of the MCHD) states that "[o]nly dry inert industrial, commercial, or household material may be accepted. Any garbage[xvii] or other solid waste that requires daily cover must be rejected."[31] Solid Waste Disposal Facility licenses from this time on generally contain the same caveat indicating that the Site did not accept putrescible waste.

A January 9, 1975 list of Montgomery County Landfills lists the Grillot Disposal site at the intersection of Dryden and East River Roads as "Closed"[32,pg.3]. Based on the above evidence, the MCHD considered the licensed portions of the Site to be a closed landfill as of 1975. Industrial wastes at the Site are overlain by two feet or greater of inert material (non native soil, foundry sand, ash, cinders, etc.)[54], which is as specified in the approved November 1970 Solid Waste Disposal Data Sheet[28]. The two feet of inert material also meets the closure requirements stipulated in HE 24, even though as the operations on the Central Parcel (Parcel 5177) were never a sanitary landfill as defined by HE 24[xviii] and the closure requirements of HE 24 are not applicable (see footnote (i)). Therefore, the portions of one of the Central Parcels (Parcel 5177) filled between 1969 and 1975 met the closure requirements of the MCHD, the Ohio Department of Health and HE 24.

1976–1980: Operation as a licensed solid waste disposal site receiving ISW, RW, and CDD

Aerial photographs from this period are provided on Figure 10. A figure showing the areas where filling occurred during this period and a photograph of a test pit typical of these areas is provided as Figure 11.

[xvii] While "garbage" is not defined by MCHD in the license conditions, it is reasonable to assume that the definition utilized by MCHD was similar to that used by Columbus, Ohio during this period. Columbus formally defined "garbage" as "any waste collection of animal, fruit or vegetable matter, and any matter or substance or waste therefrom used in the preparation, cooking, dealing in or storage of meats and fowl, fruits and vegetables."

[xviii] Sanitary landfill is defined in HE 24 as "a method of disposing of solid wastes on land without creating nuisances or hazards to public health by utilizing principles of engineering to confine the solid wastes to the smallest practical area, to reduce the solid wastes to the smallest practical volume and to cover such wastes." The key term in the definition of a sanitary landfill is "solid waste", which is defined in HE 24 as "such unwanted residual solid or semisolid material as results from industrial, commercial, agricultural, and community operations, excluding earth or material from construction, mining, or demolition operations and slag and other substances which are not harmful or inimical to public health, and includes garbage, combustible and noncombustible material, street dirt, and debris." From 1970 onwards, the materials placed in the landfill included earth or material from construction, demolition operations, slag, and foundry sand and fly ash (the latter two of which were considered not harmful or inimical to public health at the time and were expressly included in the description of permissible cover materials in the license related correspondence. During this time period, the Site did not accept garbage and all combustible materials accepted were incinerated in the licensed ACD. The Site was, therefore, not operating as a sanitary landfill.

The 1978 aerial photo (Figure 21) only shows the central portion of the Site but conditions were similar to the 1975 aerial photograph on Figure 10[4].

On June 16, 1976, MCHD provided its approval to Broadway Sand and Gravel for filling of Parcel 3277 (now the southwestern half of Parcel 5177) with dirt, concrete, and asphalt waste and noted that the proposed activities were exempt from "the requirements of a license under the Ohio Solid Waste Disposal Act (Section 3734.01 to 3734.11 ORC)."[33]

From December 1, 1976 to December 27, 1980, MCHD approved and issued yearly Licenses to Operate Solid Waste Disposal Facility for household, commercial, and industrial waste at the Site[31]. The license included wood for the ACD, paper for salvaging, metal, fly ash and bottom ash, and sewage solids/semi solids. On May 11, 1978, MCHD discovered that containers labelled hazardous were present on Site and that some of the containers still contained some of the contents[34,pg.1]. MCHD directed Alcine Grillot to cease accepting drums and other containers unless their contents had been removed and they had been washed. During a January 11, 1980 inspection, MCHD noted that the drums had been removed[35]. Further, John H. Bindeman of MCHD noted that Alcine Grillot had informed them that all of the drums and containers formerly accepted at the Site were sold for recycling[35]. A 1979 Resource Conservation and Recovery Act (RCRA) land disposal inventory states that the Site was accepting demolition debris, pallets, fly ash, and foundry sand[36,pg.5].

The Site is listed in a 1992 Ohio EPA Department of Environmental Remediation and Response (DERR) database[11]. The listing is as follows:

- *Grillot Disposal, northwest of junction of Springboro Pike (now Dryden Road) and East River Road; owner: unknown, waste type: unknown, closed: <'80*[11]

This information indicates that Ohio EPA considered the landfill closed prior to 1980. While the Site continued to accept inert material after 1980 Ohio EPA did not view it as an active sanitary landfill as defined in the 1976 version of OAC Chapter 3745 27. Ohio EPA did not state in any contemporaneous correspondence or identified verbal communications that additional closure or capping actions were necessary or appropriate.

There is a second listing in the DERR database which corresponds to the location of the Site:

- *Dryden Road Commercial Ldfl, 2445 E. River Rd., 0.2 miles north of intersection of East River and Dryden and on the West side of Dryden; owner Mid States Development Corp.; waste type: Fly Ash; capacity: 10 acres, closed 1982*[11]

While the description of the location corresponds to the Site, the physical address is actually south of the Site and corresponds to the location of the Miller Valentine Landfill, which accepted fly ash from DP&L.

1981–1990: Operation of the Site as a receiver of hard fill and residual wastes

Aerial photographs from this period are provided on Figure 12. A figure showing the areas where filling occurred during this period and a photograph of a test pit typical of these areas is provided as Figure 13.

In 1981, filling occurred in the central and southern portions of one of the Central Parcels (Parcel 5177[4]). The auto salvage yard had expanded to the south and reached the central portion of one of the Central Parcels (Parcel 5177[4]). In 1988, the Northern Parcels remain largely unchanged; fill continues to be placed in the southern portion of one of the Central Parcels (Parcel 5177) but the pace appears to have slowed[4], which is consistent with the depositions of Jack Boesch[1] and Ed Grillot[5] in which they indicate that the Site activity had largely ceased in the 1980s.

On April 21, 1982, a Solid Waste Disposal Facility Violation Notice was issued for the Site, warning that paper products may only be accepted for salvaging if stored in enclosed trucks or containers[37]. Notices on December 7, 1982[38] and February 24, 1983[39] noted that drums containing waste material were not to be accepted. On January 29, 1983, MCHD noted that the Site was accepting hard fill and some fly ash[40].

MCHD approved and issued a license to Operate Solid Waste Disposal Facility for the Site on January 2, 1986, accepting industrial, commercial, and household waste, fly ash and bottom ash, wood for the ACD, and paper for salvaging[41]. On April 24, 1986, the Regional Air Pollution Control Agency ordered Alcine Grillot to cease all open burning at the Site and noted that no permit had been issued for the ACD. There is no mention of the ACD after 1986. The last license granted by Ohio EPA was issued in 1986[41].

In a letter dated April 14, 1987[42], MCHD requested confirmation from Alcine Grillot that he was no longer operating a solid waste disposal facility. MCHD confirmed that hard fill as well as construction and demolition debris were still permitted. Alcine replied to MCHD on April 27, 1987 and stated "I have not received 'SOLID FILL' for about (10) TEN YEARS and do not need 'SOLID WASTE' Permit. I do accept the hard fill and some Demolition [*sic*] Waste." In 1989, Alcine stated "I have not land filled or covered garbage or pretensible [*sic*] waste on my operation. All materials, wood and other waste materials that we disposed of were burned at the end of each days operation"[6]. Alcine also stated that he did "accept broken concrete, brick, dirt, ash, gravel, broken concrete block, etc. that does not contain wood"[6].

On January 8, 1990, MCHD informed Alcine Grillot that an MCHD inspection:

> revealed an area near the front of the fill on which fly ash is being dumped. Demolition debris was also observed, however, there was no evidence of any solid waste on the site. Although you were previously given authorization for disposal of demolition material at your site, recent changes in the solid waste disposal regulations will require you to obtain new approval from Ohio EPA. Ohio Administrative Code (OAC) 3745 27 13(A) states that, "No person shall, without prior authorization from the Director, engage in filling, grading, excavating, building, drilling, or mining on land where a hazardous waste facility or solid waste facility was operated. As a previously licensed solid waste disposal facility, this rule applies to your site[43].

MCHD ordered the Site to cease accepting any waste until a permit was acquired for disposal of demolition debris[43]. This letter provides evidence that this portion of one of the Central Parcels (Parcel 5177) was considered a closed waste disposal site and indicates that the MCHD did not have any concerns regarding the closure of the former solid waste disposal area. Demolition debris and fly ash were accepted at this

time[43]. A letter from MCHD granted temporary permission to the Site to accept fly ash from Delco from April 2 to April 30, 1990[44] at which time the Site ceased accepting and disposing of fly ash.

MCHD noted in an October 16, 1990 Site inspection that the pallet area contained trash and paper, barrels with metal turnings inside, and flattened empty barrels[45].

As the Site was no longer considered a solid waste disposal facility and was considered closed, the portions of one of the Central Parcels (Parcel 5177) on which filling occurred during this period are not subject to the closure requirements of either the 1976 or 1994 versions of OAC 3745-27.

1991–1996: Central Parcel (Parcel 5177) Continues to Receive Clean Hard Fill

Aerial photographs from this period are provided on Figure 14. A figure showing the areas where filling occurred during this period and a photograph of a test pit typical of these areas is provided as Figure 15.

The 1991 aerial photo (Figure 24) is of poor quality but shows little change from the 1988 aerial photograph (Figure 23). The 1993 aerial photo (Figure 12) is similar to the 1991 aerial (Figure 24) and shows filling continued on one of the Central Parcels (Parcel 5177). The 1994 aerial photo (Figure 25) is similar to the 1993 aerial photo (Figure 12) with the exception that the automobile salvage yard was no longer present in 1994. By the 1996 aerial photo (Figure 14), vegetation was present on much of one of the Central Parcels (Parcel 5177) except for a small area in the center of that parcel. The pallet recycling operations were ongoing in 1996 but filling operations had largely ceased by this time[4]. In 1996, Valley Asphalt's operations extended across the entirety of Parcel 5054 and had begun encroaching on Parcel 5177.[4]

Ohio EPA informed Alcine Grillot in 1990 that "the type of waste (broken concrete, brick, dirt, ash, gravel…) disposed on the Site does not generate a large quantity of landfill gas. Therefore, you are exempt from complying with the Ohio Administrative Code 3745-27-12"[57]. A letter from MCHD (January 31, 1991)[46] indicated that concrete, stone, brick, and block were being dumped, as well as asphalt which was not permitted in this area of the Site; paper and trash were also accepted in the west pallet area.

One of the Central Parcels (Parcel 5177) ceased to accept clean hard fill in early 1996 upon the death of Alcine Grillot.

Southern Parcels

Pre 1945 – Acquisition of the Southern Parcels

Boesch acquired the 40 acres comprising the Southern Parcels of the Site from John Albert 'Dutch' Davis in 1943 or 1944[1,pg.39,2,pg.19]. Slightly differing information exists in the records with respect to the conveyance of these parcels. In the 2006 Administrative Settlement and Order on Consent (ASAOC) for Remedial Investigation and Feasibility Study, USEPA states that Boesch purchased an additional 30 acres from Davis in 1944[3], which corresponds to the majority of the Quarry Pond Parcels (Parcels 3274, and Parcel 3276 (which forms approximately the western two thirds of what is now referred to as Parcel 5178), Jim City Parcels (Parcels 3753 and 4423), and one of the Ron Barnett Parcels (Parcel 4610). A chain of title for what are now identified as Parcels 5177 and 5178 states that Boesch acquired Parcel 3276 from Davis in

1945[3,pg.7]. The parcels acquired from Davis were farmland in 1935 and 1936[4]. Davis retained the frontage along East River Road.[1,pg.39]

The Schawn[2,pg.23] or Schon[1,pg.51] Gravel Pit operated on the Southern Parcels from 1944 to about 1964 (from the depositions of Jack Boesch). However, in the 1949 aerial photograph (Figure 4), only a small area of disturbed ground at the western edge of one of the Quarry Pond Parcels (Parcel 5178) is visible, which indicates that only limited gravel extraction occurred in the Southern Parcels prior to 1949. Further, the 1968, 1970, and 1975 aerial photographs show significant disturbed ground indicative of continued excavation activities at the Shawn Gravel Pit (Figures 6 and 8).

1945–1955: No Filling Occurs

On the Southern Parcels, the Schawn Quarry has expanded significantly by 1954 and occupies the southern portion of Parcel 5178. Ground scarring, which the USEPA identified as extraction pits, is also visible in the 1954 aerial photograph (Figure 4) on Jim City Parcels (Parcels 3753 and 4423), and one of the Ron Barnett Parcels (Parcel 4610)[4]. Activities on the Northern Parcels and the Southern Parcels are entirely separate with active farmland in between. No evidence of filling is apparent on the Southern Parcels in the 1949, 1952, and 1954 aerial photos (Figures 4, 17, and 4, respectively)[4].

One of the Ron Barnett Parcels (Parcel 3252) is erroneously included as part of the Site as defined in the ASAOC. However, Parcel 3252 has never been excavated and was never associated with disposal operations on the Northern Parcels or Southern Parcels in any way. Further, as there is no evidence that filling occurred on Parcel 3252, Parcel 3252 should not be included in the definition of the Site for the purposes of the ASAOC and associated Scope of Work (SOW).

1956–1968:

The Southern Parcels appear relatively unchanged in the 1956 aerial photo as compared to the 1954 aerial photo (Figures 6 and 4, respectively) with the exception that there is only one remaining excavation on Parcels 3753 and 4423. The remainder of Parcels 3753 and 4423 has been restored to their present grade with evidence of disturbed ground in the western portions only.

In 1968, gravel extraction was occurring across most of one of the Southern MCD Parcels (Parcel 3274) and Quarry Pond Parcel (Parcel 5178) and possibly on one of the Jim City Parcels (Parcel 4423)[4]. Filling was occurring on one of the Ron Barnett Parcels (Parcel 4610)[4].

Boesch and Grillot transferred ownership of the current Southern MCD Parcel (Parcel 3274) to the University of Dayton in 1968. MCD acquired Parcel 3274 from the University of Dayton in 1969. As previously discussed, the undated tax map shows Parcel 3274 belonging to the University of Dayton and does not show this parcel as requiring fill. Parcel 3274 did not belong to Grillot and Boesch as of the end of 1968, at which time sand and gravel extraction was still occurring or had only recently ceased on this parcel. Parcel 3274 was clearly not part of whatever landfill license application the undated tax map may have been associated with. The Remedial Investigation completed on the unsubmerged portion of Parcel 3274 demonstrates that waste has not been placed on Parcel 3274, with the exception of traces of construction and demolition debris identified in the southwest corner of the parcel. Therefore, as Parcel 3274 was not part of the licensed landfill, the landfill closure requirements of OAC 3745-27 are not

applicable to this parcel. Further, as there is no evidence that filling occurred on Parcel 3274 prior to its conveyance to the University of Dayton in 1968, Parcel 3274 should not be included in the definition of the Site for the purposes of the ASAOC and associated SOW.

1969–1975:

In the 1970 aerial photo[4] (Figure 8), extraction continued to occur on the Quarry Pond Parcel (Parcel 5178). Some filling had occurred on one of the Jim City Salvage Parcels (Parcel 4423) since the 1968 aerial photo (Figure 6). By 1973, an automobile salvage yard had commenced operation on one of the current Jim City Salvage Parcels (Parcel 3753)[4]. The 1975 aerial photo (Figure 8) appears similar to the 1973 aerial photo (Figure 20) except that, by 1975, the automobile salvage operation had expanded and covered most of Parcel 3753 and extended on to Parcel 4423.

1976–1980:

The Southern Parcels are not shown on the 1978 aerial photo (Figure 21), however, they are visible on the 1979 aerial photo (Figure 22)[4]. In comparison to the 1975 aerial photo (Figure 8), by November 1979 extraction has ceased on the Quarry Pond Parcel (Parcel 5178) and the majority of the Quarry Pond Parcel (Parcel 5178), one of the Southern MCD Parcels (Parcel 3274), and one of the Jim City Parcels (Parcel 4423), are covered with water.

As noted above, MCHD provided its approval to Broadway Sand and Gravel for filling of Parcel 3277 (now the southwestern half of Parcel 5177) with dirt, concrete, and asphalt waste and noted that the proposed activities were exempt from "the requirements of a license under the Ohio Solid Waste Disposal Act (Section 3734.01 to 3734.11 ORC)."[33] The 1976 MCHD letter is apparently in response to a June 7, 1976 application to fill Parcel 3277 submitted by Broadway Sand and Gravel[33]. The Southern Parcels of the Site are not included in the application and the 1975 aerial photograph (Figure 8) indicates that gravel extraction operations were still ongoing on the Southern Parcels in 1975[4]. Therefore, whether or not the Southern Parcels were ever included in the landfill applications prior to 1976, they were not part of the 1976 landfill permit application. None of the license applications or licenses after this period state the area of the landfill or identify the parcels on which filling occurred. The 1979 RCRA land disposal inventory identifies the landfill as being 40 acres in size with all 40 acres used and no additional acreage remaining for disposal[36,pg.2]. At this time no filling is evident on the Southern Parcels providing further evidence that these parcels were not considered part of the landfill.

One of the Jim City Parcels (Parcel 3753) was conveyed to Doyle Roberson and Virginia Roberson in 1975, who then conveyed the parcel to Ollie Lacy in 1988[49]. Parcel 3753 was conveyed to the Robersons in 1975[49] indicating that any filling on this parcel, was completed prior to the applicability of the 1976 closure requirements. Therefore, Parcel 3753 is not subject to municipal solid waste landfill closure requirements under either the 1976 or 1994 regulations.

1981–1990:

By 1981, the Quarry Pond had flooded[4], indicating that gravel extraction had ceased on the Southern Parcels (Figure 10). Water levels in the GMR are also high at this time[4]. A number of aboveground storage tanks are visible on one of the Ron Barnett Parcels (Parcel 4610)[4]. These storage tanks are likely associated

with the Mantle Oil recycling facility, which was in operation in 1981[12]. In 1988, the Quarry Pond remained flooded[4] (Figure 23). Between 1981 and 1988, filling occurred on one of the Jim City Parcels (Parcel 4423), the southwest portion of Parcel 4610 and possibly in the northeast corner of Parcel 5178. Parcels 4423 and 4610 had reached their present grade by 1988. The Mantle Oil facility was no longer in existence by this time[4].

1991–1996:

In the 1991 aerial photograph (Figure 24), the automobile salvage yard on one of the Jim City Parcels (Parcel 3753) has spread to the north and covers much of the other Jim City Parcel (Parcel 4423). Buildings are visible on one of the Ron Barnett Parcels (Parcel 4610). No additional filling appears to have occurred since 1988. There is no change in the 1994 or 1996 aerial photos (Figures 25 and 14, respectively) with the exception that the automobile salvage yard continues to expand and by 1996 occupies the entirety of Parcels 3753 and 4423. The undeveloped portions of the Southern Parcels became increasingly heavily vegetated between 1991 and 1996[4].

Jack Boesch stated that the parcels occupied by the Shawn Quarry were never filled[1] and this is corroborated by Ed Grillot who stated that landfilling never reached below the perimeter road and that his father, Cyril Grillot would get angry if anyone did dump any material in the Quarry Pond area[5,pp.102-103]. Any filling that did occur in the Southern Parcels appears to have been unrelated to the operation of the dump or landfill.

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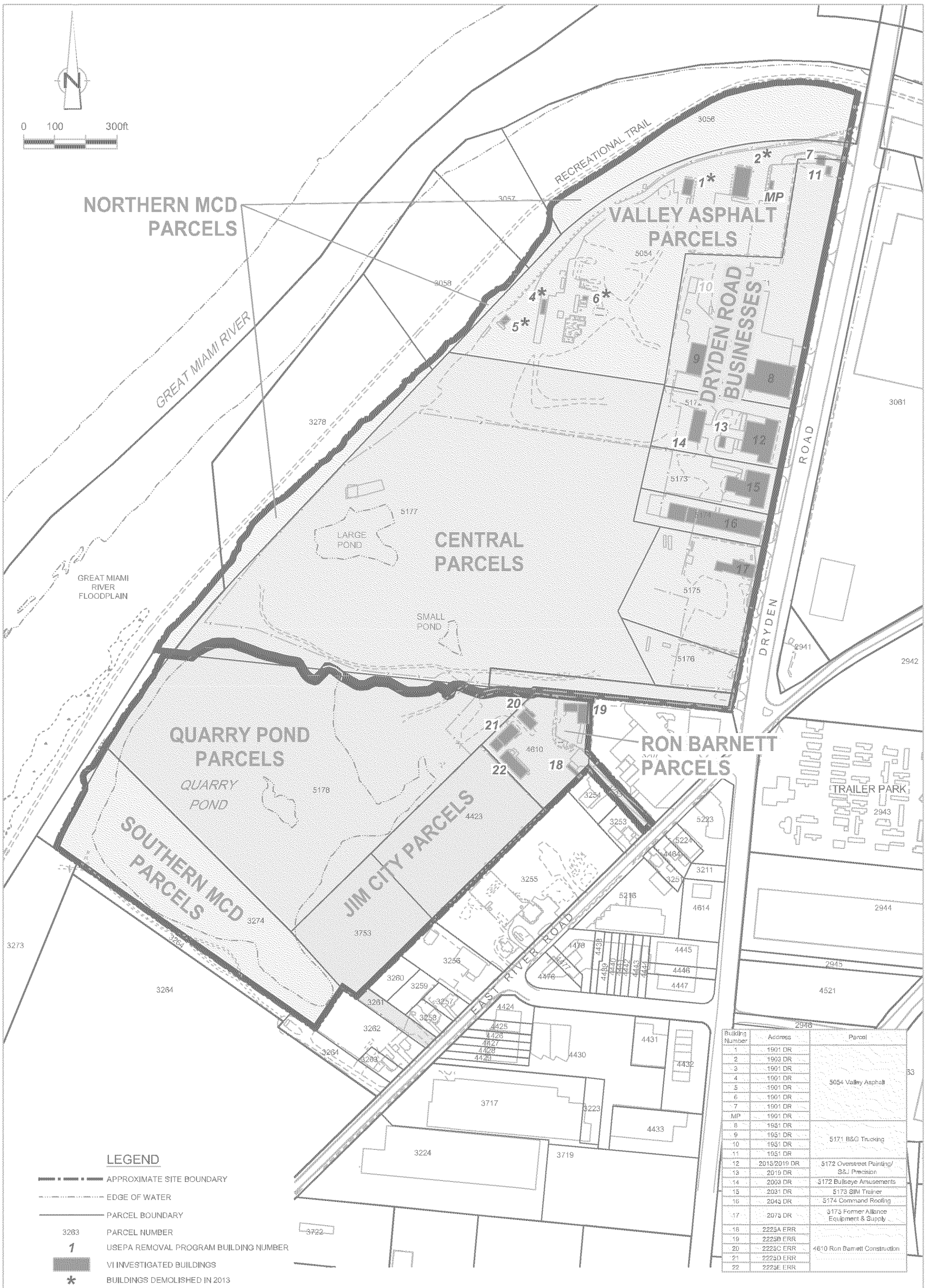


Building Number	Address	Parcel
1	1901 DR	5054 Valley Asphalt
2	1903 DR	
3	1901 DR	
4	1901 DR	
5	1901 DR	
6	1901 DR	
7	1901 DR	
MP	1901 DR	
8	1951 DR	5171 B&G Trucking
9	1951 DR	
10	1951 DR	
11	1951 DR	
12	2015/2019 DR	5172 Overstreet Painting/ S&J Precision
13	2019 DR	
14	2003 DR	5172 Bullseye Amusements
15	2031 DR	5173 SIM Trainer
16	2045 DR	5174 Command Roofing
17	2075 DR	5175 Former Alliance Equipment & Supply
18	2225A ERR	4610 Ron Barnett Construction
19	2225B ERR	
20	2225C ERR	
21	2225D ERR	
22	2225E ERR	

figure 1

PARCEL LOCATIONS AND BUILDING NUMBERS
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

SOURCES:
THE PAYNE FIRM, INC., PROJECT 0279.44.05, FIGURE 1, DATED 9/12/05;
TETRA TECH EM INC., PROJECT L0312006-SOUTH DAYTON DUMP, FIGURE 2, SITE LAYOUT, 05/25/2004;
CITY OF MORAINE.
ABRAMS AERIAL SURVEY INC. PROJECT 38443, AASI 29610, 04/02/2008

38443-15(MEMO025)GN-WA020 AUG 19/2014

1935

1938

LEGEND

APPROXIMATE SITE BOUNDARY

PARCEL BOUNDARY

APPROXIMATE INDUSTRIAL SOLID WASTE AREA

APPROXIMATE RESIDUAL WASTE AREA

APPROXIMATE CONSTRUCTION AND DEMOLITION DEBRIS AREA

SOURCE:
OHIO DEPARTMENT OF TRANSPORTATION

figure 2

AERIAL PHOTOS PRE-1945
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA001 AUG 15/2014

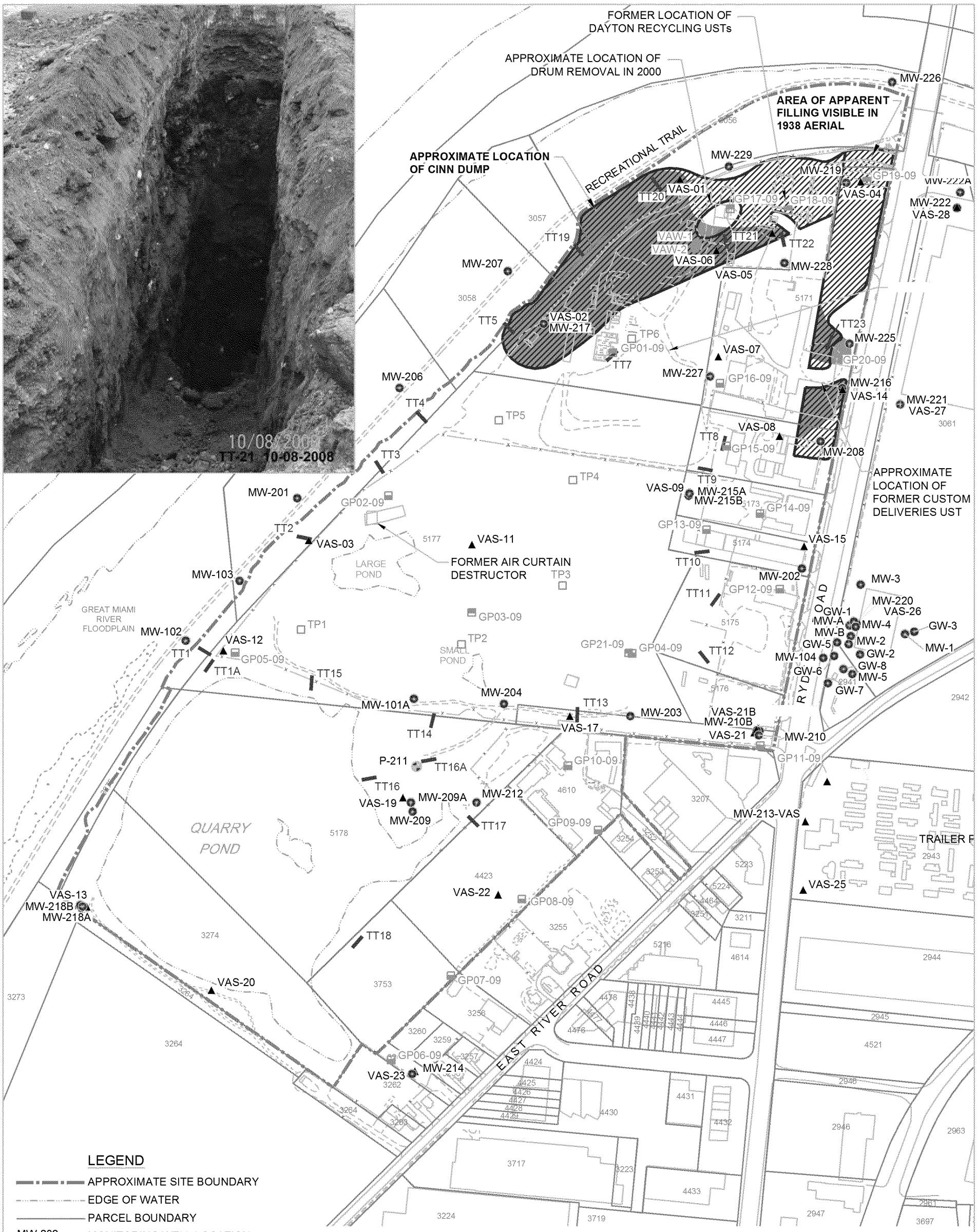
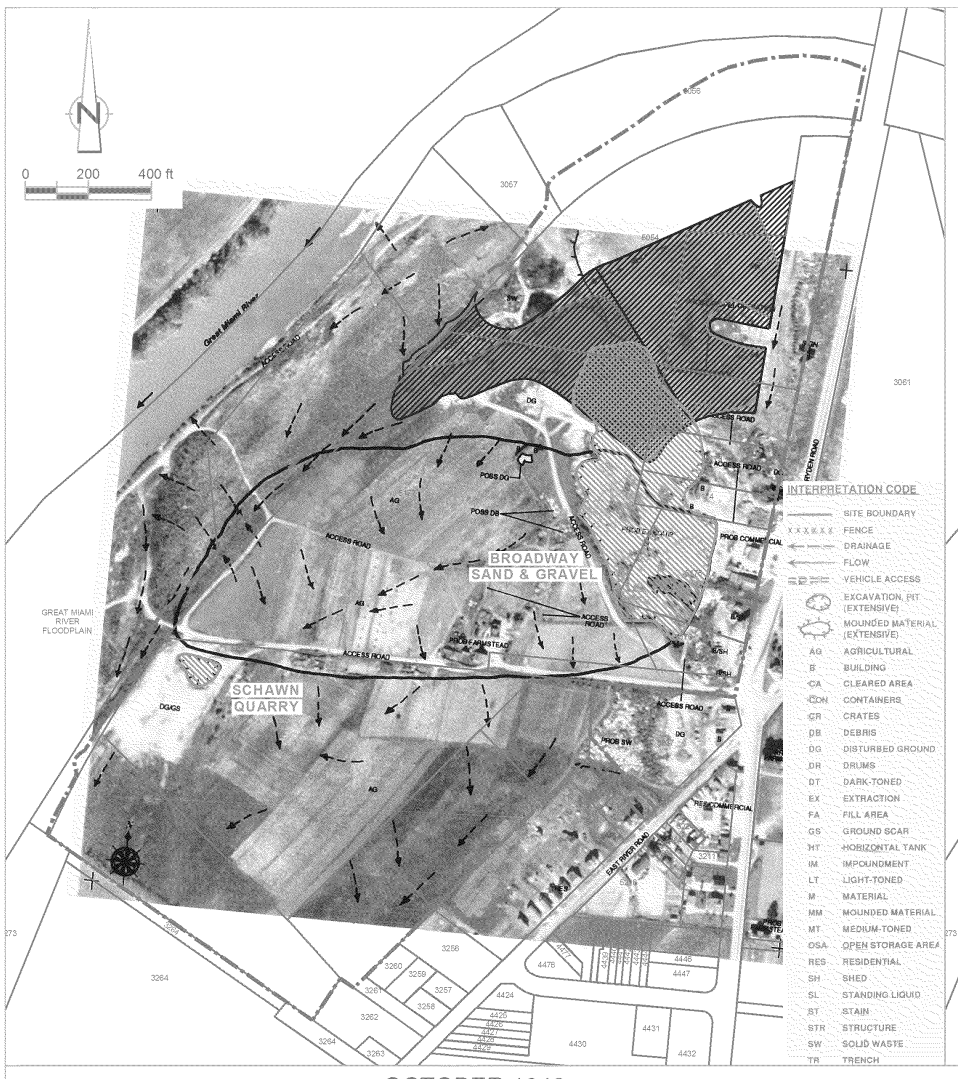


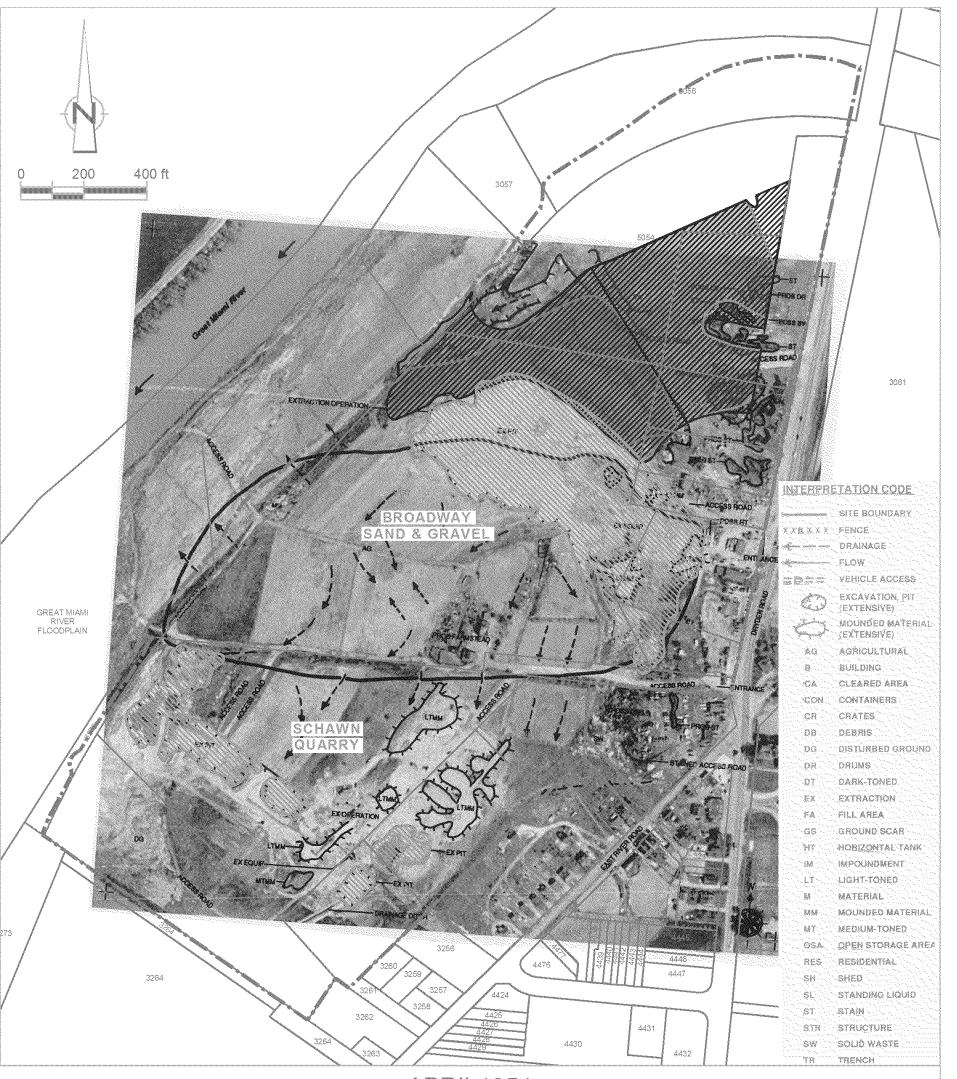
figure 3

AREAS OF ACTIVE FILLING - PRE-1945
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA002 AUG 26/2014



OCTOBER 1949



APRIL1954

LEGEND

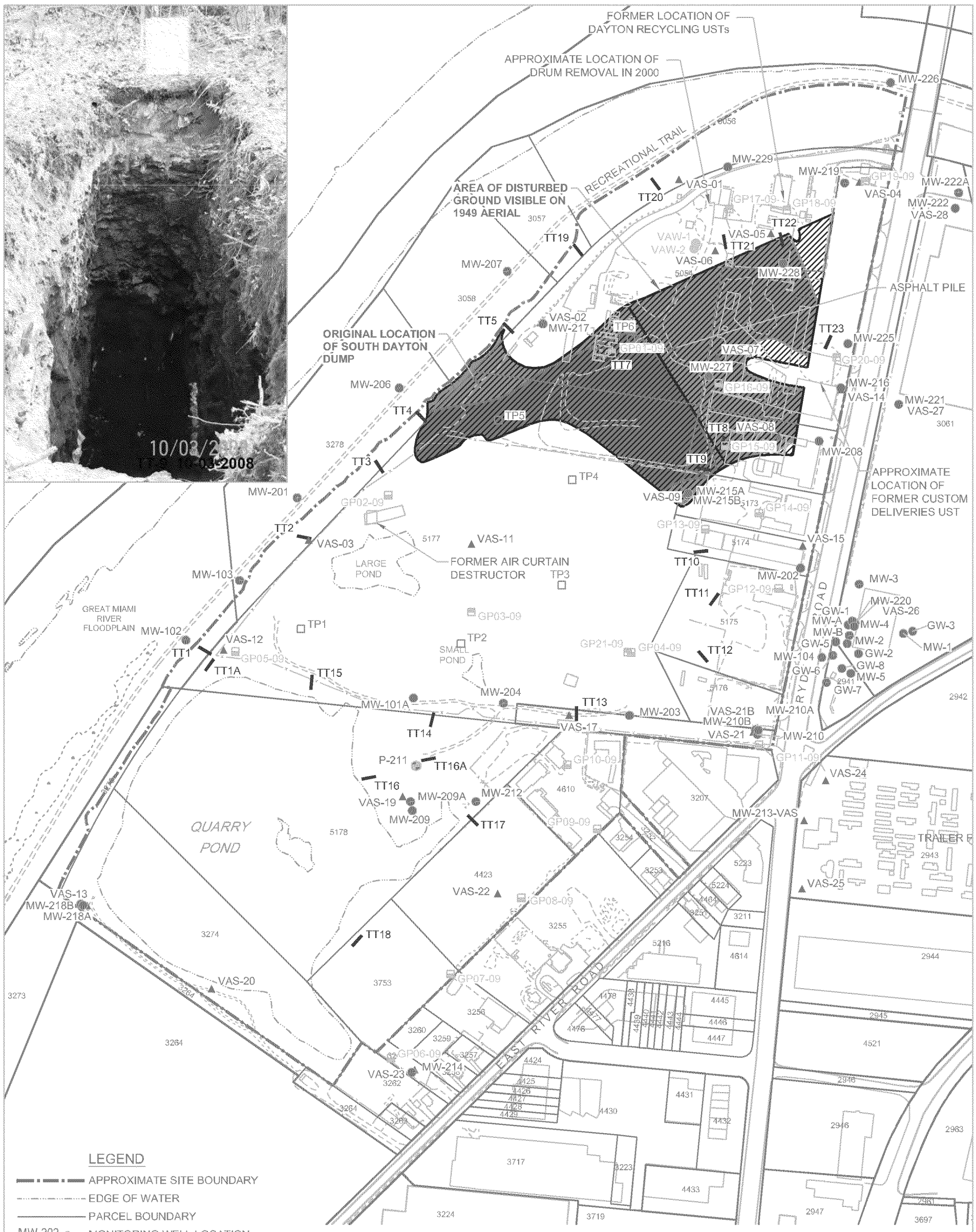
- APPROXIMATE SITE BOUNDARY
- PARCEL BOUNDARY
- APPROXIMATE INDUSTRIAL SOLID WASTE AREA
- APPROXIMATE RESIDUAL WASTE AREA
- APPROXIMATE CONSTRUCTION AND DEMOLITION DEBRIS AREA
- APPROXIMATE ACTIVE EXCAVATION AREA

SOURCE:
OHIO DEPARTMENT OF TRANSPORTATION

figure 4

AERIAL PHOTOS 1945-1955
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA001 AUG 19/2014



LEGEND

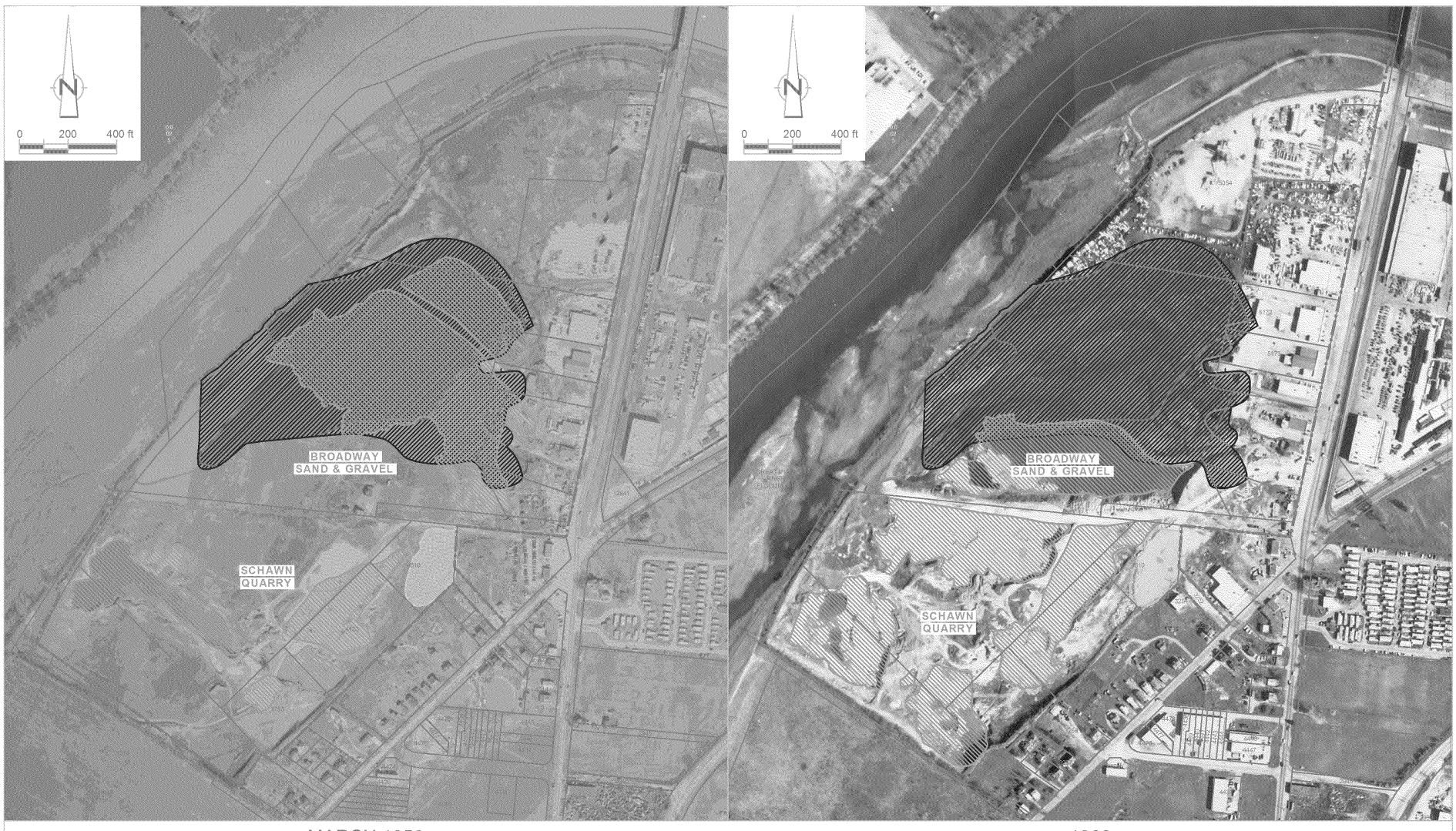
- APPROXIMATE SITE BOUNDARY
- EDGE OF WATER
- PARCEL BOUNDARY
- MW-202 MONITORING WELL LOCATION
- TP5 TEST PIT LOCATION
- TT1 TEST TRENCH LOCATION
- VAS01 VAS SAMPLING LOCATION
- P-211 PIEZOMETER LOCATION
- GP21-09 SHALLOW LANDFILL GAS PROBE
- GP04-09 DEEP LANDFILL GAS PROBE
- APPROXIMATE INDUSTRIAL SOLID WASTE AREA
- APPROXIMATE RESIDUAL WASTE AREA
- APPROXIMATE CONSTRUCTION AND DEMOLITION DEBRIS AREA

SOURCES:
THE PAYNE FIRM, INC., PROJECT 0279.44.05, FIGURE 1, DATED 9/12/05;
TETRA TECH EM INC., PROJECT L0312006-SOUTH DAYTON DUMP, FIGURE 2, SITE LAYOUT, 05/25/2004;
CITY OF MORAINE.
ABRAMS AERIAL SURVEY INC. PROJECT 38443, AASI 29610, 04/02/2008

figure 5

AREAS OF ACTIVE FILLING - 1945-1955
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA003 AUG 15/2014



MARCH 1956

1968

LEGEND

- APPROXIMATE SITE BOUNDARY
- PARCEL BOUNDARY
- APPROXIMATE INDUSTRIAL SOLID WASTE AREA
- APPROXIMATE RESIDUAL WASTE AREA
- APPROXIMATE CONSTRUCTION AND DEMOLITION DEBRIS AREA
- APPROXIMATE FILL AREA
- APPROXIMATE ACTIVE EXCAVATION AREA

SOURCE:
OHIO DEPARTMENT OF TRANSPORTATION

figure 6

AERIAL PHOTOS 1956-1968
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA001 AUG 15/2014

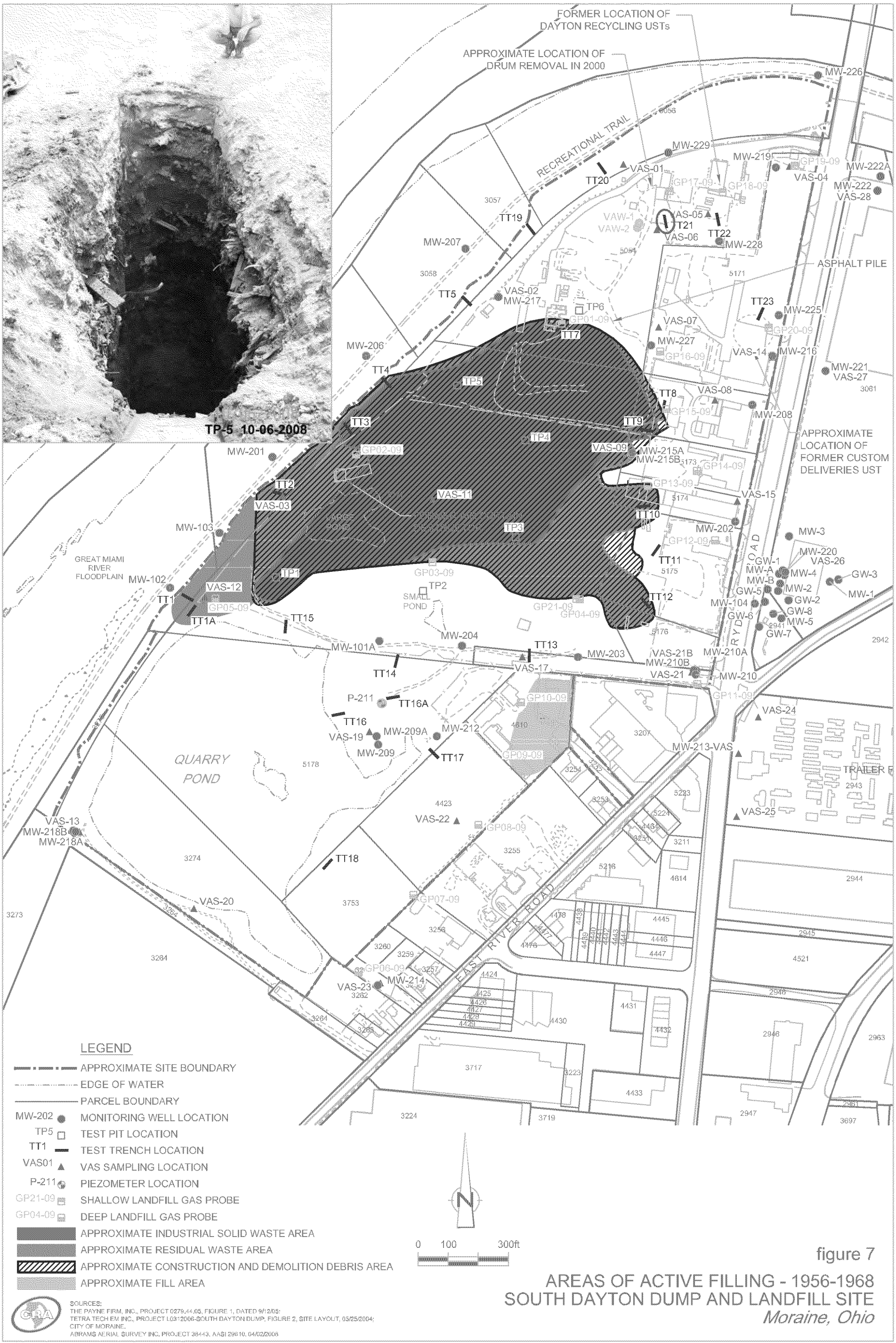
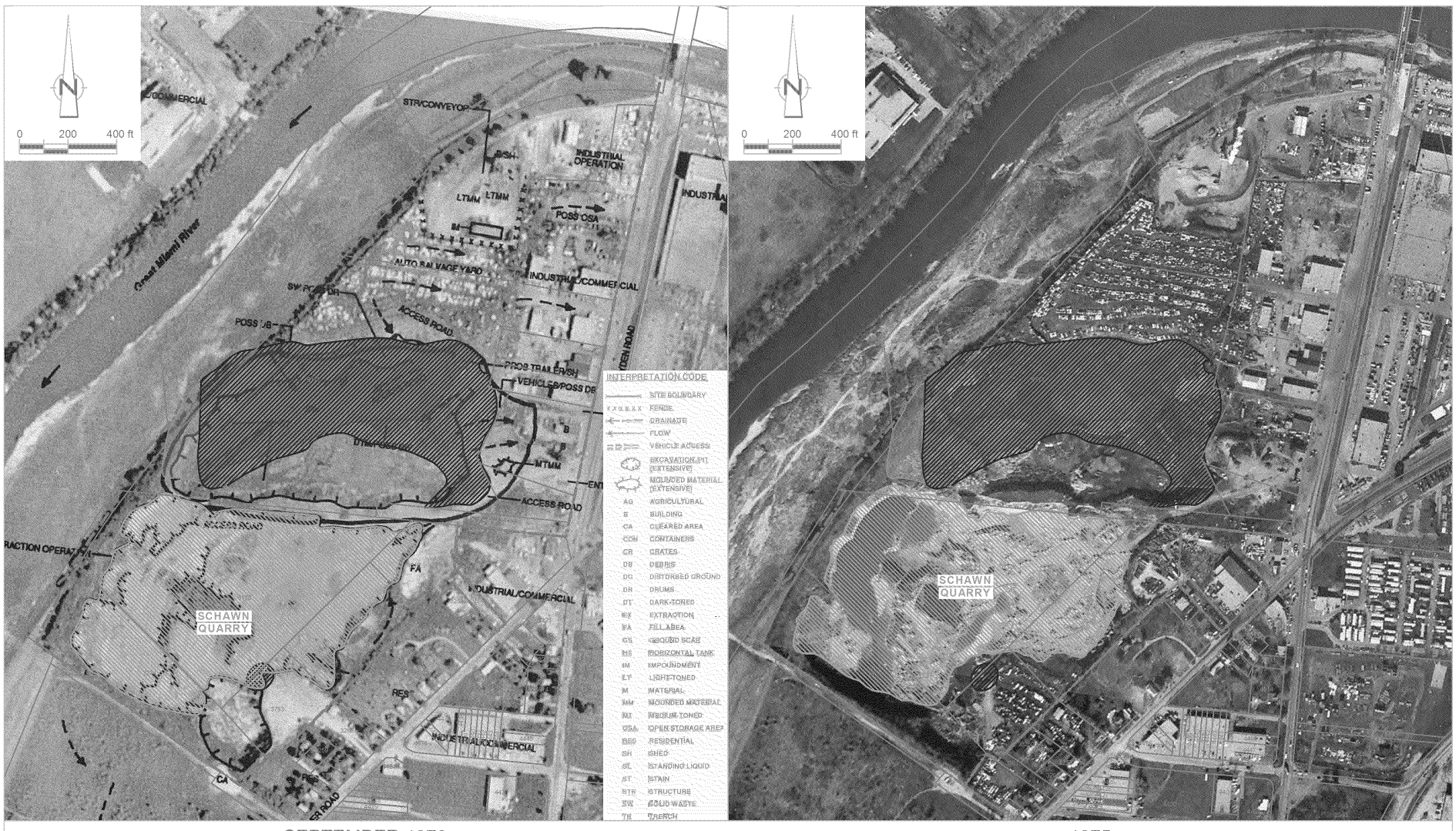


figure 7

AREAS OF ACTIVE FILLING - 1956-1968
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA004 AUG 15/2014



SEPTEMBER 1970

1975

LEGEND

APPROXIMATE SITE BOUNDARY
PARCEL BOUNDARY
APPROXIMATE INDUSTRIAL SOLID WASTE AREA
APPROXIMATE RESIDUAL WASTE AREA
APPROXIMATE CONSTRUCTION AND DEMOLITION DEBRIS AREA
APPROXIMATE ACTIVE EXCAVATION AREA

SOURCE:
OHIO DEPARTMENT OF TRANSPORTATION

figure 8

AERIAL PHOTOS 1969-1975
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA001 AUG 19/2014

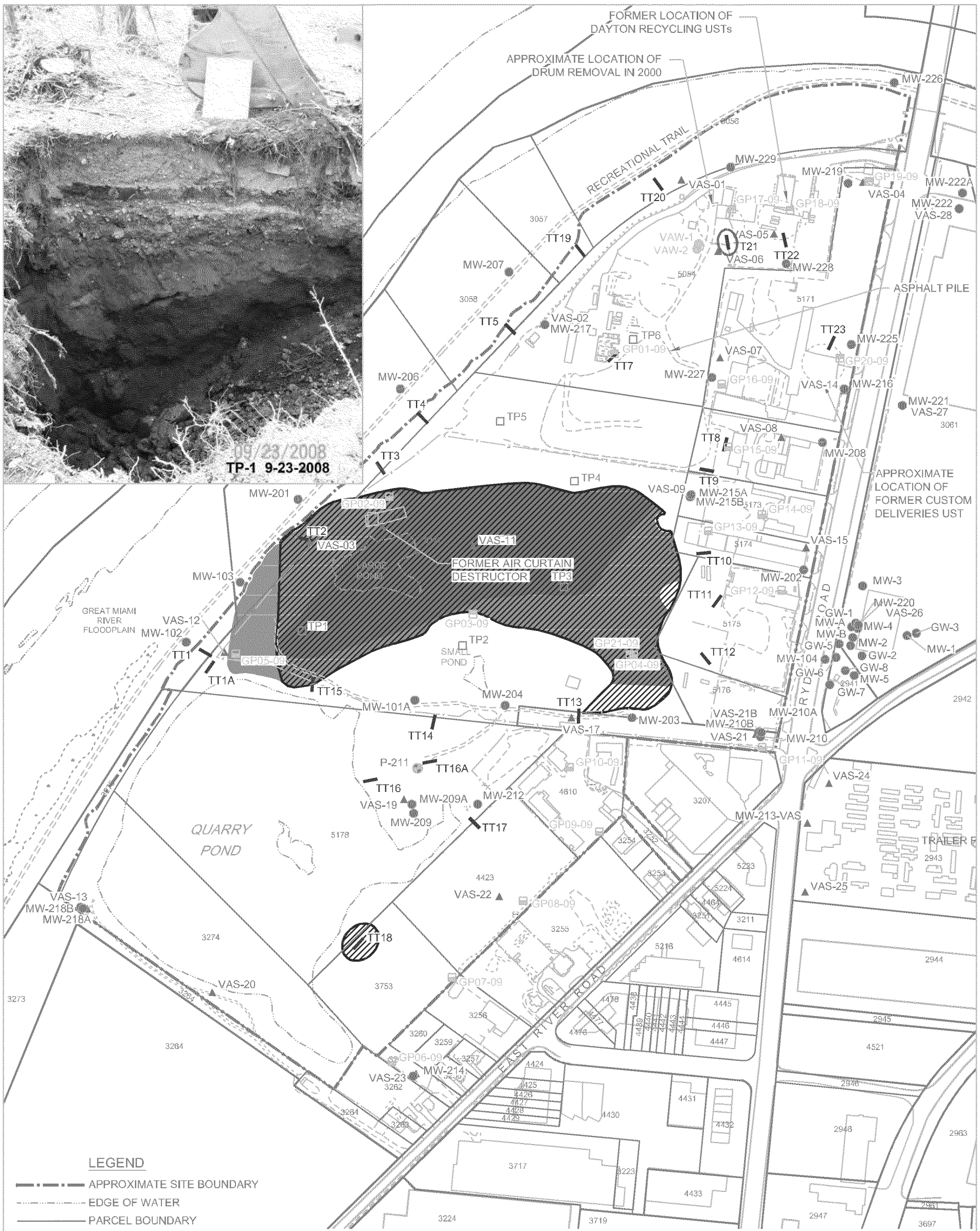
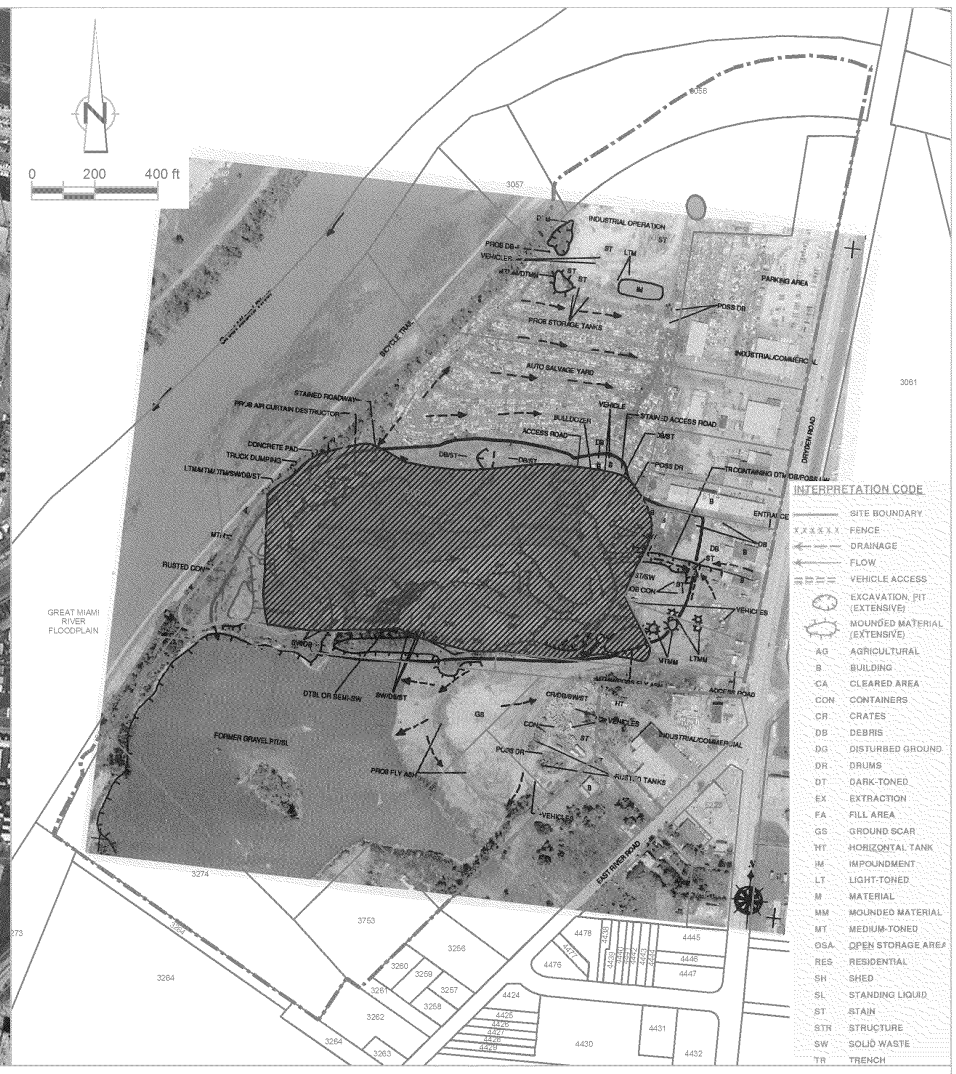


figure 9

AREAS OF ACTIVE FILLING - 1969-1975
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA005 AUG 19/2014

1975



MAY 1981

LEGEND

- APPROXIMATE SITE BOUNDARY
- PARCEL BOUNDARY
- APPROXIMATE INDUSTRIAL SOLID WASTE AREA
- APPROXIMATE RESIDUAL WASTE AREA
- APPROXIMATE CONSTRUCTION AND DEMOLITION DEBRIS AREA
- APPROXIMATE ACTIVE EXCAVATION AREA

SOURCE:
OHIO DEPARTMENT OF TRANSPORTATION

figure 10

AERIAL PHOTOS 1976-1980
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA001 AUG 19/2014

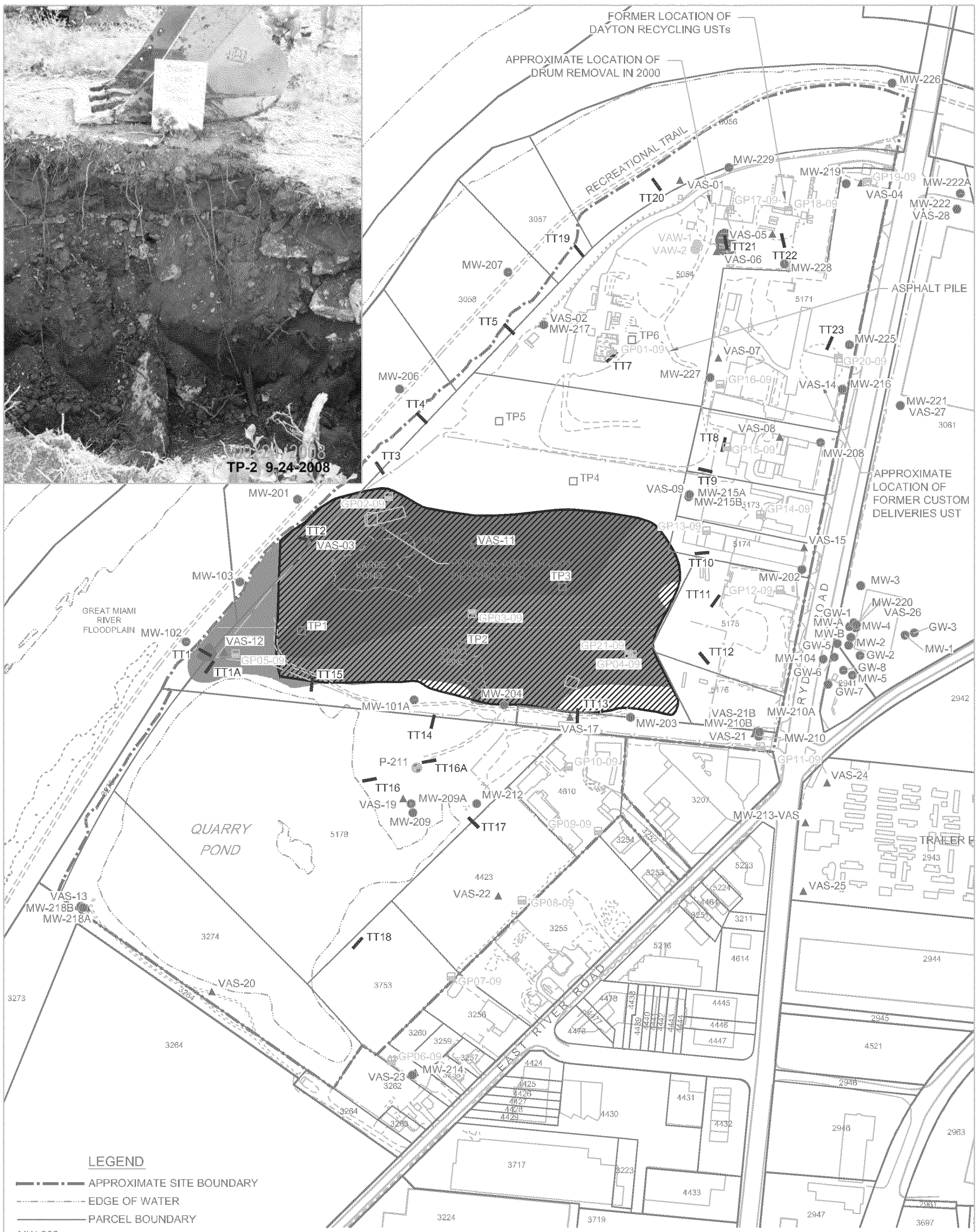


figure 11

AREAS OF ACTIVE FILLING - 1976-1980
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA006 AUG 19/2014

MAY 1981

1993

LEGEND

APPROXIMATE SITE BOUNDARY
PARCEL BOUNDARY
APPROXIMATE RESIDUAL WASTE AREA
APPROXIMATE CONSTRUCTION AND DEMOLITION DEBRIS AREA

SOURCE:
OHIO DEPARTMENT OF TRANSPORTATION

figure 12

AERIAL PHOTOS 1981-1990
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA001 AUG 19/2014

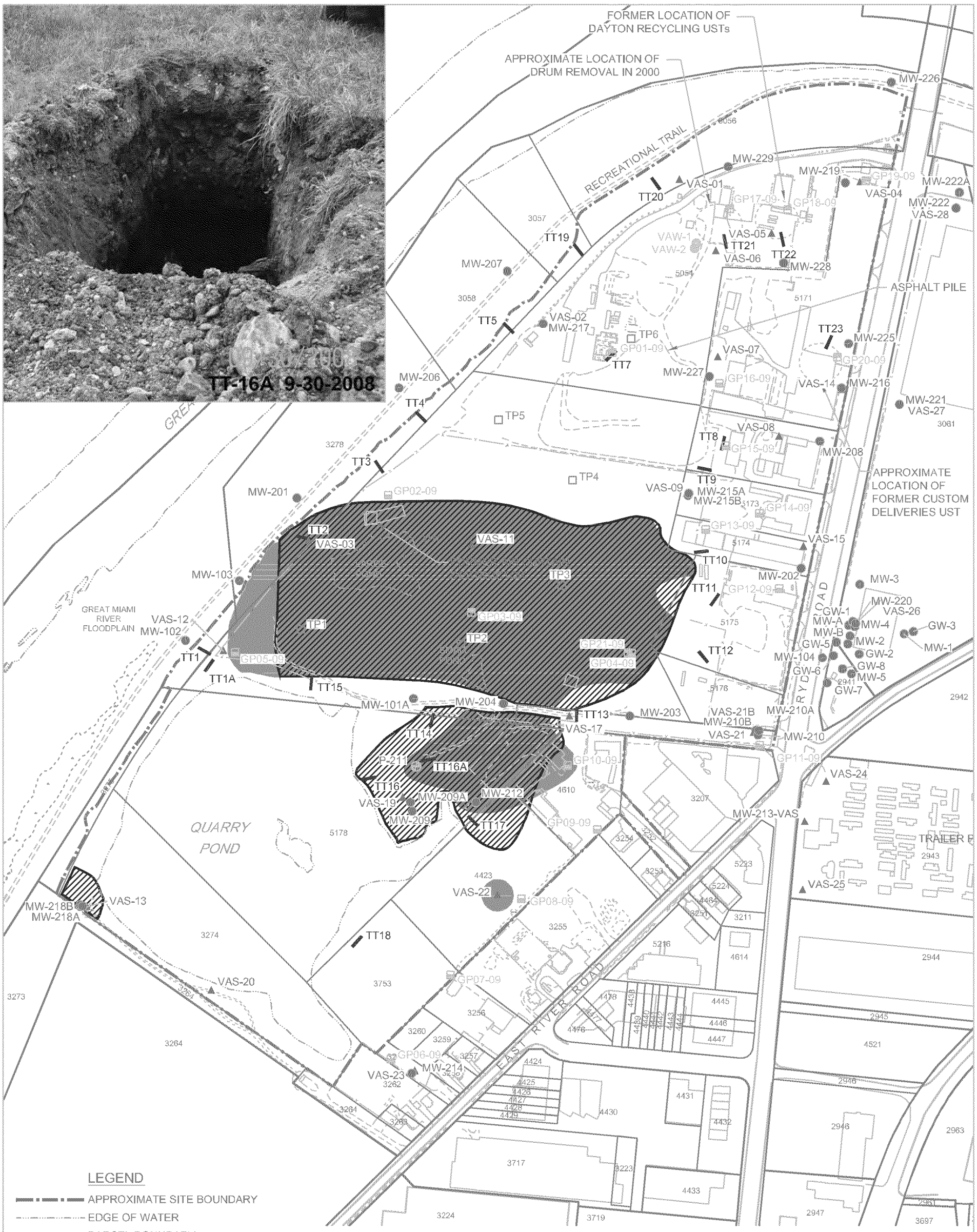


figure 13

AREAS OF ACTIVE FILLING - 1981-1990
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA007 AUG 19/2014

1993

1996

LEGEND

APPROXIMATE SITE BOUNDARY

PARCEL BOUNDARY

APPROXIMATE CONSTRUCTION AND DEMOLITION DEBRIS AREA

SOURCE:
OHIO DEPARTMENT OF TRANSPORTATION

figure 14

AERIAL PHOTOS 1991-1996
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA001 AUG 19/2014

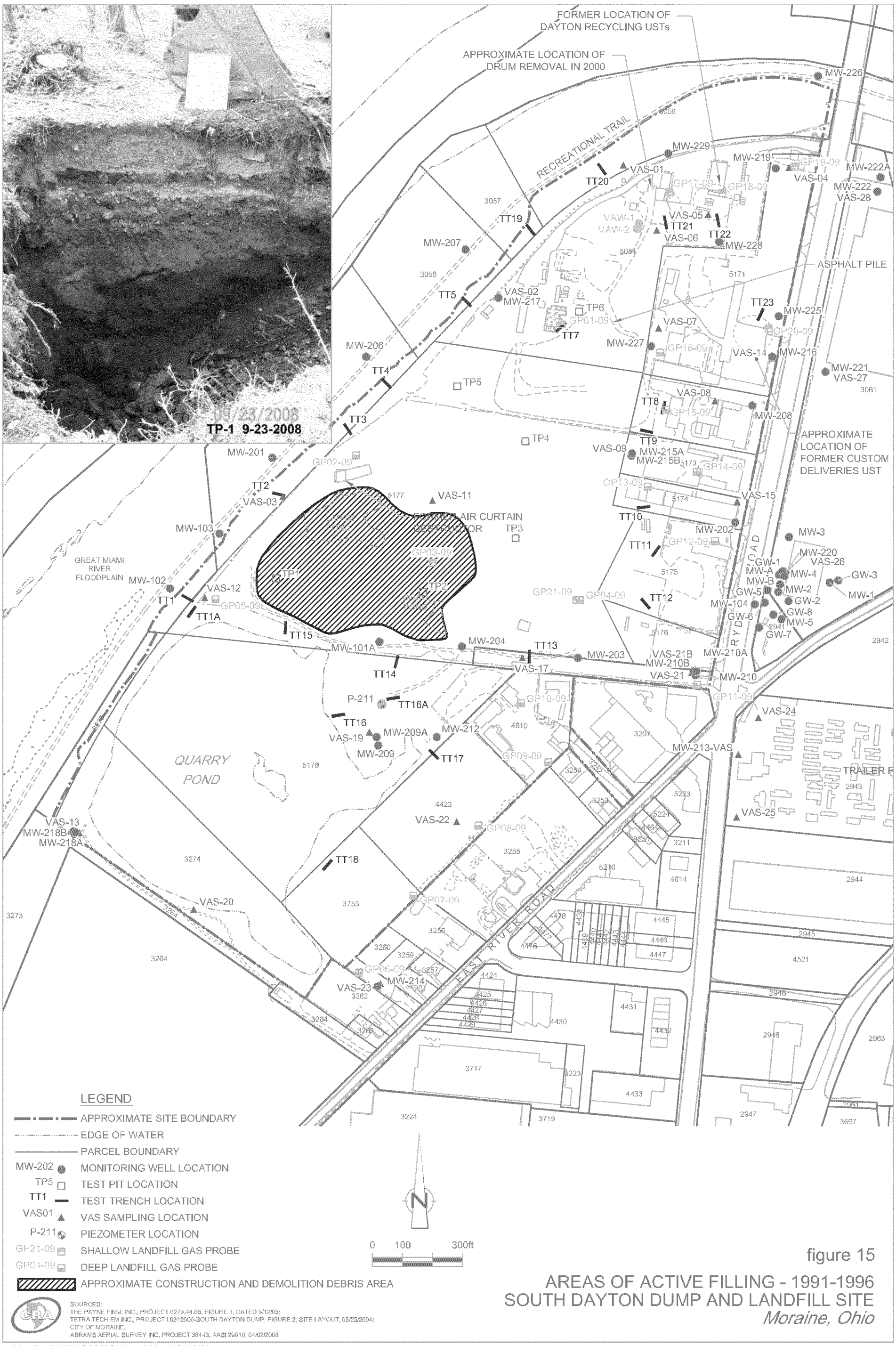


figure 15

AREAS OF ACTIVE FILLING - 1991-1996
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA008 AUG 19/2014

LEGEND

- APPROXIMATE SITE BOUNDARY
- PARCEL BOUNDARY

INTERPRETATION CODE

	SITE BOUNDARY	CR	CRATES	M	MATERIAL
x x x x x x	FENCE	DB	DEBRIS	MM	MOUNDED MATERIAL
	DRAINAGE	DG	DISTURBED GROUND	MT	MEDIUM-TONED
	FLOW	DR	DRUMS	OSA	OPEN STORAGE ARE
	VEHICLE ACCESS	DT	DARK-TONED	RES	RESIDENTIAL
	EXCAVATION, PIT (EXTENSIVE)	EX	EXTRACTION	SH	SHED
	MOUNDED MATERIAL (EXTENSIVE)	FA	FILL AREA	SL	STANDING LIQUID
AG	AGRICULTURAL	GS	GROUND SCAR	ST	STAIN
B	BUILDING	HT	HORIZONTAL TANK	STR	STRUCTURE
CA	CLEARED AREA	IM	IMPOUNDMENT	SW	SOLID WASTE
CON	CONTAINERS	LT	LIGHT-TONED	TR	TRENCH

SOURCE: U.S. EPA AERIAL PHOTOGRAPHIC ANALYSIS OF SOUTH DAYTON DUMP SITE, MORAINE, OHIO

figure 16

SEPTEMBER 1936 AERIAL PHOTOGRAPH
OU1 REMEDIAL INVESTIGATION REPORT
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA010 AUG 19/2014

LEGEND

APPROXIMATE SITE BOUNDARY

PARCEL BOUNDARY

SOURCE:
OHIO DEPARTMENT OF TRANSPORTATION

figure 17

1952 AERIAL PHOTOGRAPH
OU1 REMEDIAL INVESTIGATION REPORT
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA011 AUG 19/2014

LEGEND

APPROXIMATE SITE BOUNDARY

PARCEL BOUNDARY

SOURCE:
OHIO DEPARTMENT OF TRANSPORTATION

figure 18

AUGUST 1957 AERIAL PHOTOGRAPH
OU1 REMEDIAL INVESTIGATION REPORT
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA012 AUG 19/2014

LEGEND

APPROXIMATE SITE BOUNDARY

PARCEL BOUNDARY

SOURCE:
OHIO DEPARTMENT OF TRANSPORTATION

figure 19

NOVEMBER 1959 AERIAL PHOTOGRAPH
OU1 REMEDIAL INVESTIGATION REPORT
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA013 AUG 19/2014

LEGEND

APPROXIMATE SITE BOUNDARY

PARCEL BOUNDARY

SOURCE:
OHIO DEPARTMENT OF TRANSPORTATION

figure 20

APRIL 1973 AERIAL PHOTOGRAPH
OU1 REMEDIAL INVESTIGATION REPORT
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA014 AUG 19/2014

LEGEND

APPROXIMATE SITE BOUNDARY

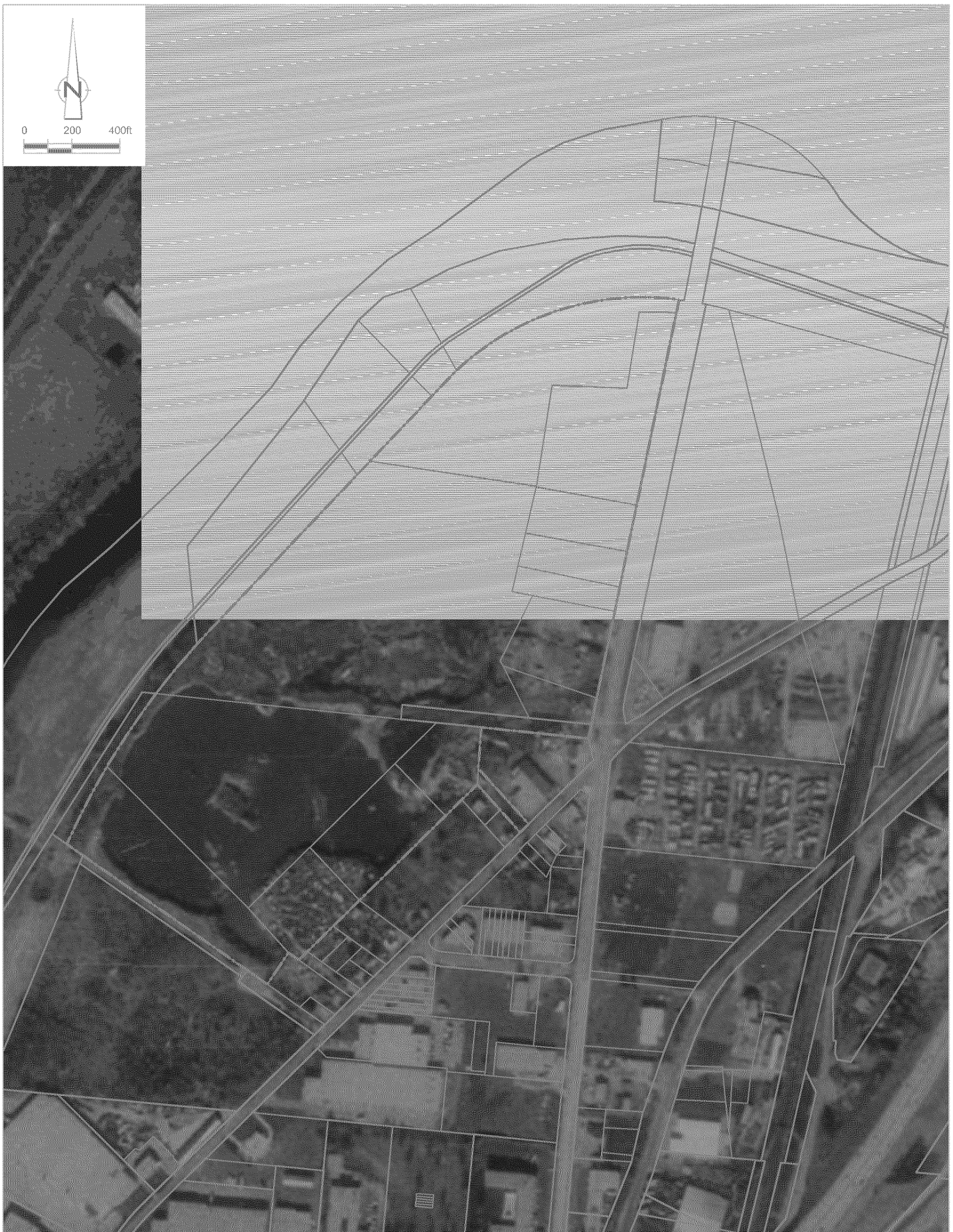
PARCEL BOUNDARY

SOURCE:
WOOLPERT GEOGRAPHIC INFORMATION SYSTEMS

figure 21

1978 AERIAL PHOTOGRAPH
OU1 REMEDIAL INVESTIGATION REPORT
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA015 AUG 19/2014



LEGEND

SITE BOUNDARY (SOW 2006)

PARCEL BOUNDARY

figure 22

NOVEMBER 1979 AERIAL PHOTOGRAPH
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

SOURCE:
OHIO DEPARTMENT OF TRANSPORTATION

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LEGEND

APPROXIMATE SITE BOUNDARY

PARCEL BOUNDARY

INTERPRETATION CODE

	SITE BOUNDARY	CR	CRATES	M	MATERIAL
x x x x x x	FENCE	DB	DEBRIS	MM	MOUNDED MATERIAL
	DRAINAGE	DG	DISTURBED GROUND	MT	MEDIUM-TONED
	FLOW	DR	DRUMS	OSA	OPEN STORAGE ARE
	VEHICLE ACCESS	DT	DARK-TONED	RES	RESIDENTIAL
	EXCAVATION, PIT (EXTENSIVE)	EX	EXTRACTION	SH	SHED
	MOUNDED MATERIAL (EXTENSIVE)	FA	FILL AREA	SL	STANDING LIQUID
AG	AGRICULTURAL	GS	GROUND SCAR	ST	STAIN
B	BUILDING	HT	HORIZONTAL TANK	STR	STRUCTURE
CA	CLEARED AREA	IM	IMPOUNDMENT	SW	SOLID WASTE
CON	CONTAINERS	LT	LIGHT-TONED	TR	TRENCH

SOURCE: U.S. EPA AERIAL PHOTOGRAPHIC ANALYSIS OF SOUTH DAYTON DUMP SITE, MORAINE, OHIO

figure 23

APRIL 1988 AERIAL PHOTOGRAPH
OU1 REMEDIAL INVESTIGATION REPORT
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

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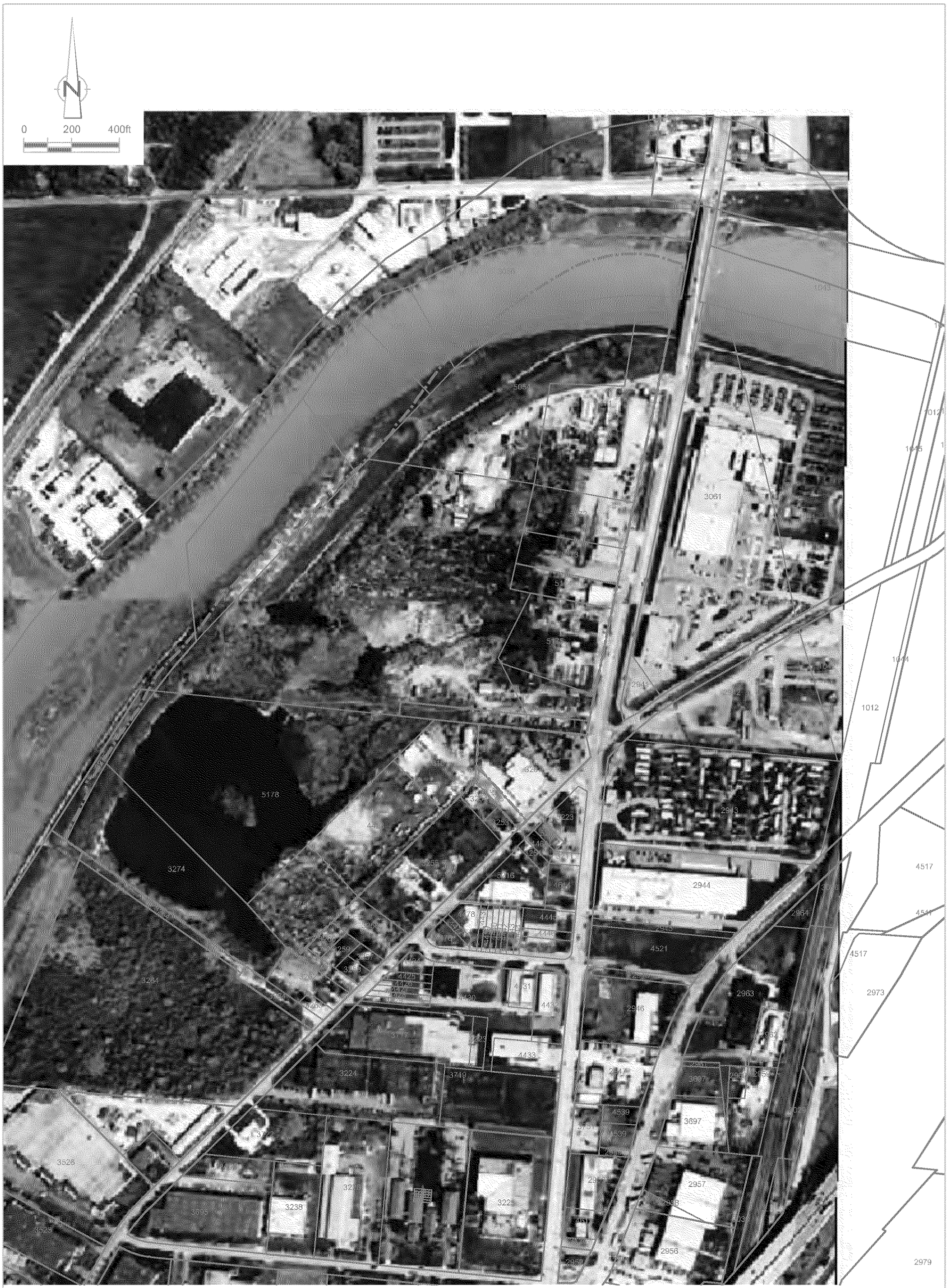

LEGEND

APPROXIMATE SITE BOUNDARY

PARCEL BOUNDARY

SOURCE:
WOOLPERT GEOGRAPHIC INFORMATION SYSTEMS

figure 24

1991 AERIAL PHOTOGRAPH
OU1 REMEDIAL INVESTIGATION REPORT
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

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SOURCE: U.S. EPA AERIAL PHOTOGRAPHIC ANALYSIS OF SOUTH DAYTON DUMP SITE, MORAINE, OHIO

figure 25

APRIL 1994 AERIAL PHOTOGRAPH
OU1 REMEDIAL INVESTIGATION REPORT
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

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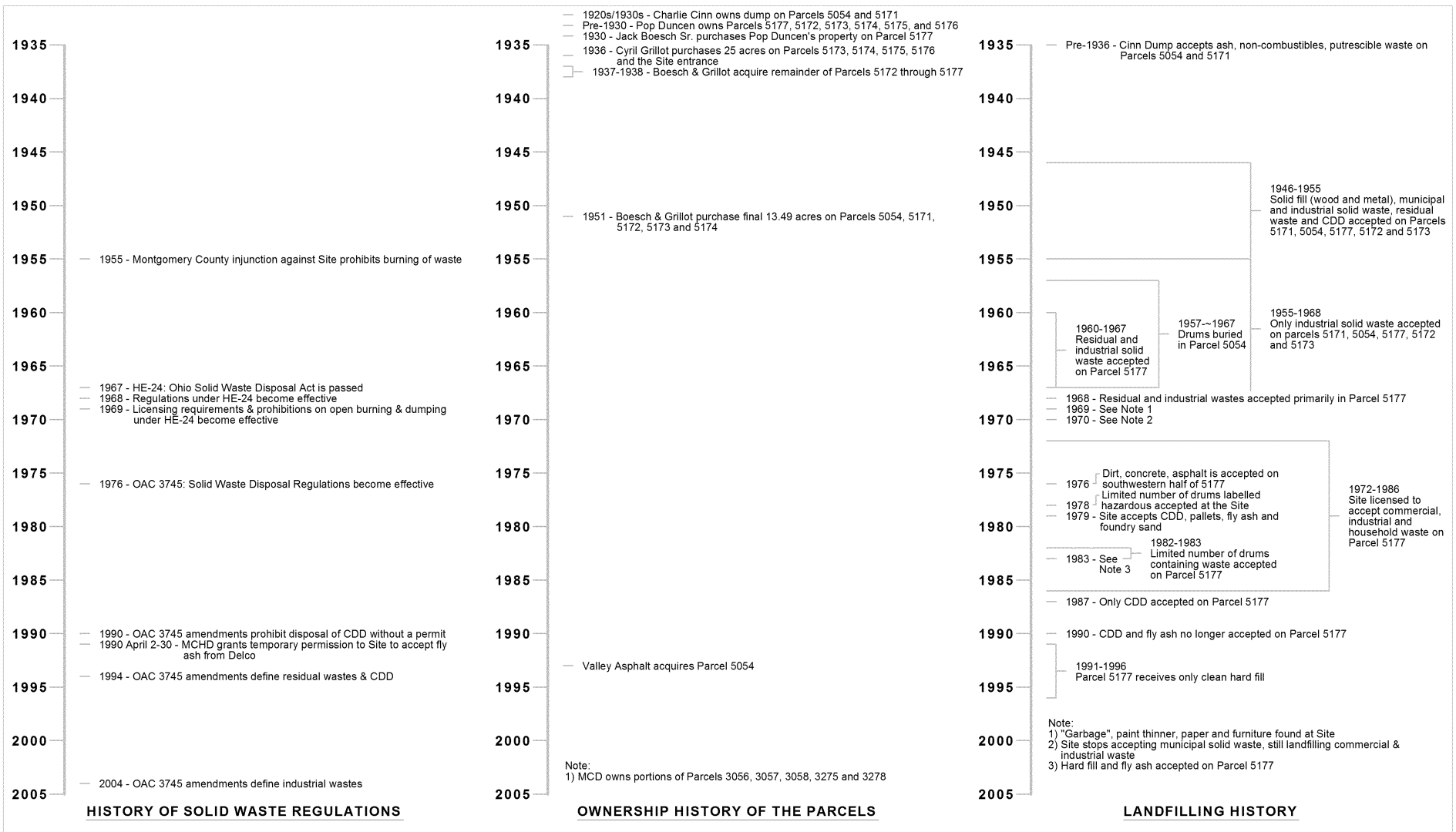

figure 26

SITE TIMELINE FOR NORTHERN PARCELS
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

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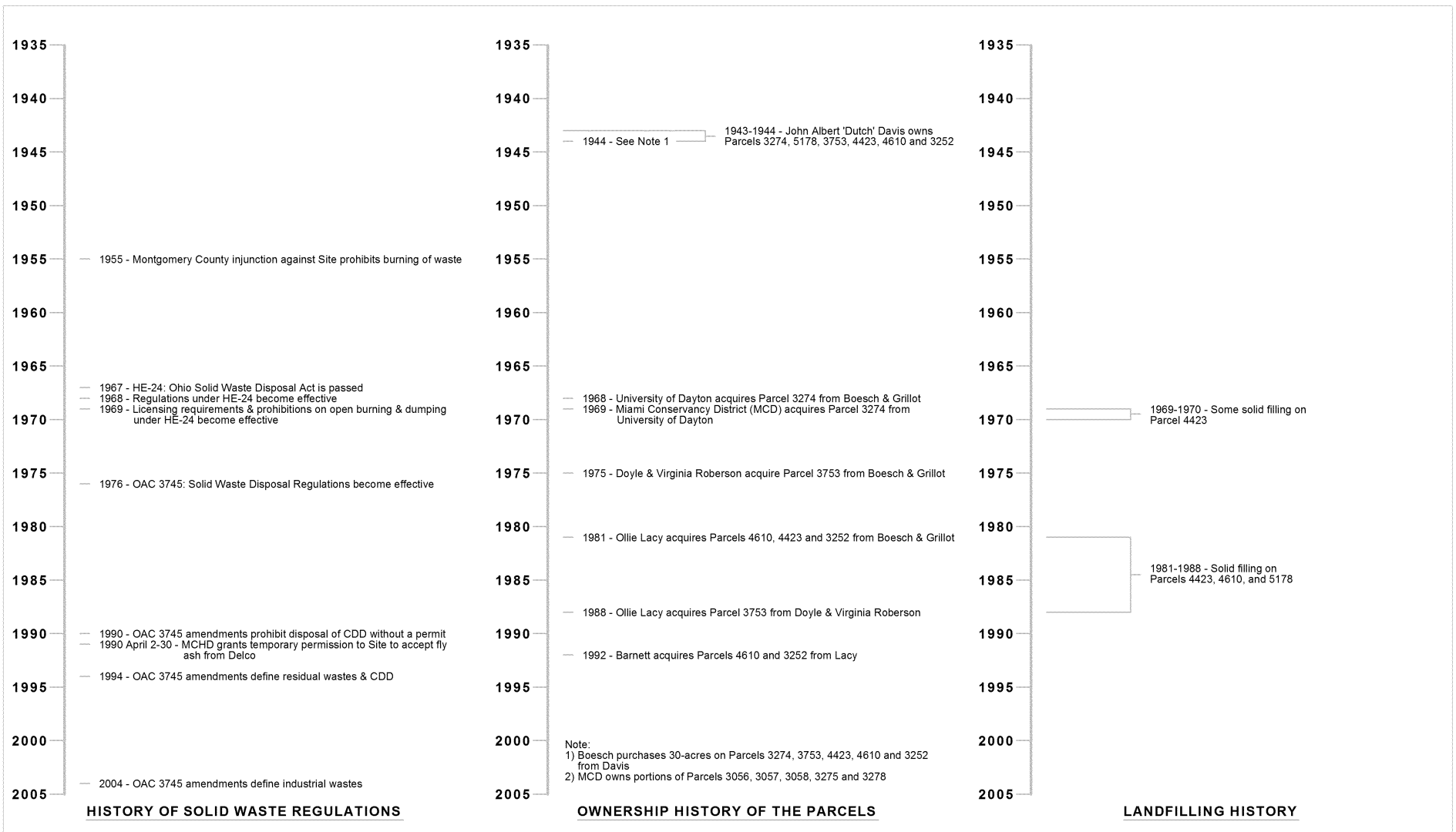

figure 27

SITE TIMELINE FOR SOUTHERN PARCELS
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

38443-15(MEMO025)GN-WA009 AUG 26/2014